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ON THE USE OF ANÆSTHETICS IN VETERINARY PRACTICE, AND THE PHYSIOLOGICAL ACTION OF CHLOROFORM.

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THE use of anæsthetics in veterinary surgery is yearly on the increase, and no practitioner who has proper feelings of humanity would venture to state that either there is too much risk in their use, or disadvantages in their employmen, when he comes to consider the frightful amount of pain inflicted when no anæsthetic is administered in a long and critical operation. And not only have we to consider the torture inflicted on an animal endowed with similar feelings to ourselves, but also the great advantages to be gained by having the patient motionless when operating, how the knife can be used in dangerous situations, and bloodvessels properly secured. We have not those incessant and violent strugglings of the unfortunate animal under the pain inflicted by the operator, who, in many instances, has to exert himself to avoid bodily injury, as well as, at the same time to have his head cool and his hand steady.

We have not as yet heard any logical or tangible reasons brought forward by those who assert that anæsthetics are not necessary in our practice. Some have stated that the operation wound and after-effects do not progress in a satisfactory manner, but no statistics have been given in this respect.

It appears that the other reasons brought forward are :

(1) The risk to the animal dying under the influence of the agent used.

(2) The expense of the operation, as a second practitioner is necessary.
(3) The delay in waiting for the influence of the anæsthetic to pass off.
(4) The danger of the struggling induced by the primary excitement of the drug, causing injury to the vertebral column.

To each of these reasons I shall now endeavour to bring forward conclusive evidence that they are entirely erroneous, and are often made use of by operators who wish to avoid extra trouble to themselves. What is more, they think very little of the tortures which their patient endures when firmly secured by mechanical aid, provided they are themselves in safety.

For a long time I have watched carefully the action of chloroform, both in horses and dogs, not only with reference to the peculiarities of individual idiosyncrasies, but also to the healing of the operation wounds and after-effects, and I can confidently say that the anæsthetic, if it has any effect at all in this respect, it is a favourable one.

Take the operation of castration in an adult thoroughbred horse under the influence of chloroform. The anæsthetic is administered without any trouble, and the operation is performed without any struggling; if the anæsthetic be properly administered, the space of time required for its effects to pass off is not by any means so long as many would persuade us to believe.

Thus the animal has suffered nothing from the operation itself—no sweating, injurious struggling, etc., and there has been perfect quietude for the operator. To assert that such an operation will not be as successful as one performed without the anæsthetic, is simply arguing against plain facts. To frighten and bully a thoroughbred horse for such an operation, and make him submit by mechanical aids to the tortures produced, no matter how the operation is performed, is simply absurd, when one can without any difficulty render him perfectly passive. It may be argued by many that some horses will struggle as much when under the first effects of the drug, as under the operation itself, and no doubt some do struggle more than others, but this primary effect is usually of very short duration, and depends on how the drug is administered in many cases. If the agent is administered in very small quantities at first, no doubt there will be a long period of struggling; but a proper amount should be allowed and the air kept as much away as possible.

It is surprising how differently some horses behave under the effects of the vapour as compared with others. Some have very little primary excitement, and are under the influence of the drug almost before we are aware of it; while others manifest great excitement, neighing, etc., and take a long time to pass under its influence. In human practice, we find that the condition of the pupils of the eyes and the sensibility of the cornea are described as important phenomena in the different stages of the action of chloroform. In the horse I do not think we can rely to such an extent on the occurrence of these changes. I have often observed the pupil to remain dilated during the whole period of anæsthesia, and I have also often seen cases where to all appearance there was no sensation over the body, but the cornea was sensible to reflex action.

With reference to the risk incurred in the use of chloroform in the horse, it will soon be ascertained by those who commence to employ it that such risk is enormously exaggerated. That there is a certain amount of risk depending on organic diseases of the respiratory or circulating system, or upon individual susceptibility, no one who has experience of the drug will deny. For instance, to administer a very large amount at one time, and so to thoroughly saturate the system with it, such as has sometimes been done, cannot be but productive of serious risk, or even a fatal termination, which would be far more likely to occur if the animal were not in a state of perfect health.

In speaking of horses, I may safely say that, leaving disease out of the question, it would take a deliberate act in order to kill a horse with chloroform, and I make this statement from observations of cases in which I had administered too much by error, for surgical purposes, and also cases in which I have experimented with the drug in destroying horses. Of this I shall speak further on, when treating of the physiological action of the drug. But thus far I have been treating of horses; when we come to consider the use of chloroform in the canine species, we find a very different state of affairs. In dogs this drug has a very powerful effect, and requires the utmost possible care in its administration. If given without plenty of air, the respiration may cease in a very short space of time, and without any warning. This is especially the case with aged dogs, or those in high-class condition. Of course, if there is any indication of cardiac disease, this agent should not be employed at all. I have no doubt but that, in some cases in dogs, heart failure may be the cause of death,

provided there is a cardiac affection; but in the majority the respiratory system is the first to give way.

In minor operations on dogs, there is no necessity to place the animal fully under the drug, as there is a primary stage of anæsthesia in which a quick operation can easily be performed. The longer and more critical operations, of course, require the full anæsthesia; but in such cases the respirations should be carefully watched, and artificial respiration employed when there is the least sign of distress.

In the administration of the drug, plenty of air should be allowed, and the effects closely watched. It is far safer to take a little time in these animals than to suddenly saturate the system. In the horse a proper amount should be at first administered by means of the chloroform bag, and no more till it is required.

The length of time which may elapse before some horses may awake from the effects is very remarkable. I have had some cases in which the most serious symptoms manifested themselves, and in spite of artificial respiration, stimulants, etc., seemed as if they would succumb to the effects, and have on record one such case which took two hours and a-half before recovery came about.

But out of a large number chloroformed, I have only noticed two cases in which serious symptoms occurred, and a considerable length of time elaped before consciousnes returned. In such cases there is no time for delay, and the artificial respiration, cold douches to the head, and careful administration of stimulants must be persisted in, even though there may seem but little hope of success.

With reference to the expense attending the use of anæsthetics, this is a matter of very slight consideration, as in many cases an ordinary assistant will do all that is required. Of course in tedious operations a second practitioner would be necessary; but even then there are few owners of horses who would grudge the extra expense for the value received; and social etiquette among the members of the profession should not render it an unpleasant duty for one practitioner to assist the other, and thus benefit each other thereby, by raising the standard of veterinary surgery to a similar position as that of human surgery through the scientific employment of anæsthetics.

I have thus shown that those who oppose the employment of anæsthetics have not an iota of argument to bring forward on any of the different points. The price of the drug itself being about 2s. per lb. for methylated chloroform, cannot be objected

to when we only require from two to four ounces for an ordinary operation.

I now wish to draw attention to the physiological actions of chloroform. As before remarked, it takes a large amount and a long time to deliberately kill a horse by its use. In two instances I have failed to cause death, one of the animals being a very old mare, the other a horse with an incurable open knee-joint. Both these cases showed the greatest distress in respiration, but even with large amounts administered they gradually recovered consciousness.

My last experiment was with a very old pony, in high condition, whose owner wished him to be destroyed by chloroform as being the most humane method of destruction. I commenced by administering two ounces with Carlisle's chloroform bag; this the animal took freely, and yielded to its effects. I then increased the amount gradually, and so on until about twelve ounces were given, and he died in the space of half an hour.

The pulse was first accelerated, as were the respirations, while the pupils were dilated. As the drug was pushed on, the pulse was lowered in frequency and strength; the respirations became shallow and irregular, and in the later stages there would be a long interval, then a long inspiration, followed by a series of short inspirations. A short time before death there were convulsive movements of both fore legs, these performing movements similar to those employed in artificial respiration. There were longer intervals between each inspiration, until at last respiration ceased altogether.

This case shows clearly the great resistance possessed by the horse against the toxic effects of chloroform, and, as I have before remarked, the drug must be pushed to a great extent, and continuously, before a fatal termination can be arrived at. Of course, for surgical purposes we do not push it to such a degree as to maintain without intermission the full action of the drug in the vital centres; as when anæsthesia is first produced, there is no occasion to repeat the amount until signs of returning consciousness manifest themselves. The *modus operandi* of the action of chloroform can be easily explained. The first effect is stimulation of the central nervous system. It first acts on the higher centres of the cerebrum, causing excitement, followed by disorder and depression. The muscular centres are also stimulated. These effects are shown in the horse by neighing, struggling, etc., which vary in different animals of the same species, as regards their duration and intensity. The pupils become slightly

dilated, and the eyes rotate in their sockets. The next effect is on the medulla oblongata; the cardiac and respiratory centres are stimulated, the blood pressure is raised, and the respirations are accelerated; there may also be a slight amount of perspiration shown.

The next stage is the most important for surgical purposes. Instead of stimulation of these centres, we now have depression; the pulse falls in frequency and strength, and the respirations become slower and heavier. The functions of the cerebrum are arrested, and there is cessation of consciousness, and also of reflex excitability. Muscular tone is lost from the action of the drug in the spinal cord and medulla, and the peripheral nerves are the last affected; so that the loss of sensation must be ascribed to a central effect. In this stage there is depression of the vital centres and functions, and general anæsthesia is produced; but this must be carefully watched in order to prevent the depression terminating in complete loss of all reflex excitability of the cord and medulla. This depression will pass off in a certain time, which varies, and consciousness will gradually return. But if the drug is still pushed until the medulla and cord lose their reflex irritability, then the respiratory centre loses its function, as also does the cardiac, and respiration becomes feebler, irregular, and at last ceases altogether; the action of the heart also becomes irregular and feeble, the bloodvessels dilate, and the heart stops in diastole.

In both horse and dog I have observed that the pulse always beats for a certain time after respiration ceases, and it is obvious how artificial respiration has the effect of again setting the vital functions in motion. It is surprising the length of time that artificial respiration must be kept up in the dog, when he appears to us as perfectly gone and beyond all hope; and how he gradually revives after the first natural inspiration is effected.

Cats are affected in a similar manner to dogs, but are apt to become very aggressive when recovering from the effects of the narcotic. My last case was one of fracture of the tibia, with a sharp portion of the bone protruding from the skin, which required removing with the bone forceps. Chloroform was administered after some trouble, but the animal received more than was required and respiration ceased. Artificial respiration was kept up for a long period, with the result that the animal revived, but it used its teeth and claws in all directions.

The number of operations in veterinary practice in which

an anæsthetic is required need not be enumerated, as many of these are extremely painful, and dangerous both to the patient and operator. In the castration of cryptorchids, I would suggest its use as being of great benefit. This year I have administered it to a "rig," with the testicle in the abdomen. There was very little trouble, no struggling or risk of hernia, and the testicle was found and removed. Without an anæsthetic, there must be extreme pain and struggling as a consequence, and the operator must of necessity make great exertions in his search for the missing organ. There may be objections raised by those who are "specialists" at this operation, but surely on the score of humanity such could easily be surmounted.

Let us hope that in the future, the profession will think it no more risk to administer chloroform to their patients during painful operations, than they will of the risk of casting and securing them for the same purpose.

Then it will be impossible for anyone to assert that we are bereft of common feeling, such as is often done, but which in reality is erroneous; the statement is made principally because people are aware that the use of anæsthetics is not general as yet in veterinary practice.

ON THE USE OF ANÆSTHETICS FOR DIAGNOSTIC PURPOSES IN VETERINARY SURGERY.

BY HENRY GRAY, M.R.C.V.S., LONDON.

Local Anæsthesia to locate the doubtful seat of lameness.—Some time ago, I read in the VETERINARY JOURNAL an article on the use of cocaine as a test to localize the seat of lameness, and having given it a fair trial on a great number of cases of fore-leg lameness, with success in every case, I herewith pen these few lines to induce those of the readers of the Journal who have not yet used it, to do so at the first opportunity offered.

Most of my cases on which I tried this test were lame in one fore-leg, and the signs or symptoms were negative; but by means of cocaine I could with certainty locate the seat of lameness. One case I will here mention to show its usefulness as an aid. An aged brown carriage-gelding, 16 hands high, had been stiff on all four members for a few days, but a day or two ago he was noticed to be very lame in the off fore-limb. Both the anterior members were the seat of enormous splints, and chronically-thickened subcarpal check ligament. The off-fore ligament on manipulation certainly did make the

horse raise or flex the limb; but as a sound horse will do the same, and as both ligaments had been in a thickened state for months, or perhaps years, without causing any lameness, I did not pay much attention to this as being the seat of lameness. I therefore had recourse to the hypodermic injection of cocaine. At first I injected the solution under the skin, just above both lateral cartilages, and then had the horse exercised for about twenty minutes without noticing any effect; so I made a further injection on each side of the swollen or thickened check ligament, and within five minutes the animal was going perfectly sound. About an hour afterwards it was as lame as ever.

General Anæsthesia as an aid to Diagnosis of Fatal from Non-fatal Bowel Lesions or Disorders.—For several years I have, at every opportunity that presented itself, had recourse to the use of general anæsthesia to allay the acute pain of bowel complaints, after such agents as opium and chloral have failed to effect this. To prevent the patient injuring himself during the first two stages of its administration, he is backed into a narrow stall, the floor and sides of which are well bedded down; and an assistant on each side of the head steadies the movements of the animal, and prevents him plunging forward. When down, he is kept under the influence of the drug (chloroform), for half-an-hour or more, till all reflexes are abolished. The drug is then withdrawn, and he is allowed to regain consciousness. If, immediately after the horse has regained his feet, pain returns, I have invariably found a fatal termination of the case; but if, as the animal is regaining consciousness, flatus is passed in a spasmodic jerky manner, and no pain is manifested after he has regained the use of his feet, recovery is invariably the rule, according to my experience.

As some practitioners may contemplate performing laparotomy for the relief of *ileus*, I would direct their attention seriously to the above remarks; for if an operation is to be successful (?) one must operate before the vital powers of the patient begin to flag, *and before the supervention of serious disorganization*, as thrombosis of the mesenteric vessels, &c. One then must be able to diagnose, in the early stage at least, a fatal from a non-fatal bowel complaint; and, for these reasons, I offer no apology for trespassing so much on the valuable space of the Journal, but trust that these few remarks will be of some use in assisting to introduce a means of relieving one of the most painful and most fatal complaints to which the horse is liable.

HEPATIC APOPLEXY.

BY VETERINARY-MAJOR W. S. ADAMS, REMOUNT DEPÔT, HOSUR, INDIA.

HORSE, admitted at 10 a.m., reported to have refused feed. He was very distressed and perspiring; the pulse was jerky and 80 per minute; the membranes were discoloured; the bowels constipated; the temperature was normal. I had a laxative and an enema administered, and subsequently a sedative. At 1 p.m. there was marked improvement; a copious fæcal evacuation took place; the distress was less, and the horse commenced to eat lucerne which was offered to him. But at about 5 p.m. there was a sudden collapse; the horse became pulseless, breaking out in a cold sweat; and he died almost suddenly from syncope.

A *post-mortem* examination showed the liver to be much enlarged and engorged with black blood. The engorgement was generally diffused throughout the substance of the organ. The horse was an Australian, recently arrived, in very poor condition, but was said to be improving. I recorded this case as one of "Apoplexy of the Liver," which I believe it to have been. I have never met with a similar case, nor can I find any record of such a case occurring in the horse, although it is recognised as often taking place in the human subject as a result of disease of the liver, or of prolonged congestion.

THE CASTRATION OF THE DOMESTIC ANIMALS.*

BY PROFESSOR DEWAR, F.R.C.V.S., ROYAL (DICK'S) VETERINARY COLLEGE, EDINBURGH.

(Continued from Page 179.)

Then, what is the best way of securing the colt for the operation? The most common method is to use the plain rope, with either back-rope or surcingle. The surcingle, or girth, has a metal D on each side, about forty-two inches apart, and is buckled on while the colt is standing. A strong pliable rope, about forty-five feet long, is taken and doubled, a knot cast on it near the doubled end, leaving a loop or noose large enough to encircle the base of the neck. It is generally an advantage, and very often necessary, to put a twitch upon the colt before putting on the ropes. The loop is put over the head and down to the shoulders, the knot resting over the front of the chest. It is better to have a strap or cord attached near the middle of the girth, so that it is situated just to the near side of the spine, for the purpose of fastening the upper part of the collar-rope back to the girth. In the

* Read at the Meeting of the National Veterinary Association, at Glasgow, on August 3rd.

struggle after he newly falls, if the colt gets his head down towards his fore feet, he is apt to pull the collar-rope off over his head. The ends of the casting-rope are then carried from the knot at the base of the collar through between the fore legs, round the outside of the thighs, between the hind legs from behind forwards; each rope being then taken forwards and outwards, below the first length of rope as it passes backwards, and is then brought along the outside of each shoulder through the loop or collar, still going forwards. The ropes are left above the hocks until every man is in his place, and then lowered cautiously by the operator; first the right, and then the left one, down under the fetlocks. For strong colts, it is desirable to have at least five men—a good man at the colt's head on the near side, and two to each rope. In order that the colt may fall pretty near the place where he stands, it is desirable that one rope should be pulled forwards and the other backwards. It will be found most convenient to pull the off side rope forwards and the near one backwards. The man at the colt's head, being at the near side, is out of the way of the opposite rope passing forwards; while the operator at the near side rope, pulling backwards and rather against the colt's hip, tends to throw him on his off side. When all is ready, the operator should tell the man at the head to back the colt, and at once give the order to pull. As the colt falls, the man at his head should go along with him and stick close to his head, keeping it down and over or behind the rope on the off side which was pulled forwards. The operator, with assistant, pulls the near side rope until the hind foot is pretty far forward; but it is a mistake to pull it as far as possible, or up to the elbow. The best distance can only be learned by experience, but it is better not to have it in front of the girthing place. The rope is then brought back along the inside of the hind foot on the same side, and given one turn round the pastern, the end being brought to the outside in front of the pastern, and above the first part of the rope, as the colt lies on his back. A second turn is given, forming a loop on the rope, which is pushed from without inwards below the hind pastern and first rope, and through which the corresponding fore foot is drawn so that the rope passes first over the front or upper side of the pastern, and is drawn out behind or below the pastern, but above and to the front of the rope forming the first part of the same loop. It is then taken through the D on the girth from within outwards, pulled as tight as possible, and taken up and given another turn round the hind pastern

from within outwards, the free end being taken out in front of the rope as it passes up from the D, passed out and backwards, and given to an assistant to hold. As it is the colt's near or left side that we have been tying—the right as he lies on his back—the assistant should keep a short hold of the rope with his right hand, grasp the toe of the hind foot in his left, and with his left foot well forward, close to the colt's side, pull backwards. The right side is fixed and held in the same way, the assistant of course using the opposite but corresponding hand and foot; and the man at the head, sitting down with a leg extended on each side of the colt's neck, grasps the halter or head collar, with a hand on each side of nose band. If the rope is soft, pliable, and firmly put on, these three men should hold the colt securely and straight on his back, while the fourth is at liberty to assist the operator if required.

We have castrated aged horses cast with the ordinary hobbles, but they are not satisfactory, the horse's thighs lying too close together; and a good strong rope is better. Mr. Mitchell, of Sunderland, has been using a strong girth recently, with a double ring on each side of the middle line to pull the feet up to. The girth is made sufficiently strong, and no collar is required. As far as we can see, the greatest objection to it is that the colt cannot be untied very readily.

We have also used a strong girth with a ring on each side, and hobbles on the pasterns, but with a chain for each side, both fastened by one screw right in the centre, the unscrewing of which let the colt at liberty, as with ordinary hobbles. This method is all that could be wished, once the colt is secured; the objections to it being the weight of the girth and hobbles, the almost impossibility of putting it on wild, unhandled colts, and that it takes longer time than the rope with ordinary colts. It is very useful, however, with older animals.

But now that our colt is secured, how are we going to operate?

We will first consider the operation by the actual cautery. The scrotum is still sometimes opened by a hot, sharp-edged firing-iron; but we are glad to think that this painful and barbarous method is gradually being given up, as no advantage is to be gained by it. But I will allow a very successful operator to describe shortly his method.

Mr. James G. Tait, Forres, writes:—"I expose the testicle with the knife, put a steel clam on to the cord, remove the testicle with the knife, and then sear up all the vascular portion

with the hot iron. The operation does not hinder long. I have operated on five in an hour, which means pretty hard work physically. I operated on a twelve-year-old horse on the 18th June, 1892, in the same manner as on the colts, and he has got on well. . . . I have operated on 200 this season, and all have done well. As to the colts swelling, I may here mention that I had not to go a second visit to any this season. Some of them I believe swelled a little at the point of the sheath, generally about the third day, remaining for a few days, but the results have been all I could desire. I have occasionally seen an abscess form in the groin a few weeks after castration, due, in my opinion, to the outer wounds healing too quickly.

"Never had a case of scirrhus cord.

"In cases of hernia, which are not very common, I castrate by the covered operation; but I have met with two cases where, having no suspicion of hernia, the intestines appeared while I was operating. I got some one to hold back the bowel, finished the operation, searing the end of the cord with the iron, and then put on a caustic clam. Both colts did well.

"I often meet with a descent of omentum, and have had five cases this season. When operating I never minded until I had finished, then cut off what was outside, and stitched up the wound. It often appears the day after the animal is castrated, hanging down to the hocks, and nearly as thick as a man's wrist. I cut it off as high as possible, and they always do well.

"I think I have had five cases of peritonitis in seventeen years, due to colts being put out in biting east winds a day or two after the operation. These are all the deaths I have had, or about one in five hundred.

"Have never met with hæmorrhage.

"I have operated on about a dozen colts by torsion; all the rest with the iron. I tried the colts in pairs at the same farms, both getting the same treatment, and I did not have nearly the same satisfaction with torsion, the torsion colts swelling much more than the others."

We must say that our results with the cautery have not equalled those of Mr. Tait, only our experience with it corresponds pretty much with his experience of torsion. We operated much in the same way, except that we divided the cord with a hot firing iron; and although we had no hæmorrhage, we have seen it resulting from three to six hours after the operation, and believe it to be difficult to stop. Certainly,

we have more swelling than after torsion, and have heard from many clients of the great amount of swelling they used to have in their colts after the hot iron, sometimes extending up to the fore legs.

Castration by ligature we have very little experience of, but we cannot see any valid reason why it should not be as successful as any other. Whatever the cause, the system seems to have been given up for other and more satisfactory methods. But we think the manner of performing the operation was not the best calculated to obtain satisfactory results. All the vascular portion of the cord was usually ligatured; and it was held as an axiom by the operator that the ends of the ligature should be left hanging out of the wound. No better system could be devised for the purpose of conveying infection up the inguinal canal. Nothing was then known of antiseptic surgery; no attempt was made to have an aseptic ligature. The ligature—generally an ordinary hempen string—being constantly moist with the effusion from the congested cord, served as a drain to introduce infectious germs into the interior of the wound; while if the ligature was cut off short the wound was apt to heal externally, leaving the ligature and ligatured portion of the cord to suppurate out. But if the operation were properly performed, using antiseptic precautions while operating, and securing the artery alone with prepared catgut or other animal tissue, we cannot see why the results should not be as satisfactory as by any other method.

Castration by the clam is a well-known method, and, as far as the immediate results are concerned, a very safe one. At one time almost universally practised in France, it was introduced to this country, where it became nearly as well known. The clams usually employed were at first made of elderwood, the pith being cleared out and the hollow filled with some caustic composition, generally corrosive sublimate. Now they are made of various kinds of wood, from four to six inches in length between the fastenings, and one and a quarter inches in diameter, more or less, according to the size and age of the animal to be operated on. A groove is usually cut from end to end for holding any desired application, and a circular groove round the clam near each end for holding the string that ties the clam together. The method we believe to be usually employed in this country is a modification of the covered operation. The colt is cast in the usual way, an incision made through the scrotum, and the testicle exposed. A sharp hook is then inserted through the

fibrous tunic, from within outwards, at the anterior angle of the incision, and given to an assistant to hold, while the operater adjusts the cord to the required length and puts on the clam, from before backwards, including the fibrous tunic, along with the cord in the clam. He then seizes the posterior ends of the clam, behind the circular groove made for the cord that fastens the clam together, with a strong pincers, and grips the clam as hard as he can, while the assistant, releasing his hook, ties the clam as tightly as possible. Each testicle is secured in the same way. Some operators leave the testicles hanging until the clams are taken off; others cut them off just below the clam. Except for appearance sake and for the size of the testicles in aged animals, there is no great advantage gained by cutting off the testicles, as the strain does not come on the spermatic cord when castrated in this way, but on the fibrous tunic. The clams are left on for forty-eight or seventy-two hours, and in aged animals even longer, and when removed the testicles are cut away, leaving some portion of dead tissue at the ends of the cords.

We have also operated by the uncovered operation—compressing only the bare cord without the fibrous tunic, and cutting away the testicle as soon as the clam is secured. The advantages of this operation are that a much lighter clam can be used, and it can be removed in twenty-four hours. But its disadvantages are great; it leaves an opening communicating with the peritoneum. The strain is nearly all on the cord, which sometimes, when relaxed, hangs down away from the wound in the scrotum; and the clam may not keep its position, as we have found it with the ends reversed when we proceed to take it off.

The covered operation is performed when scrotal hernia is present or suspected. The incision is only carried through the skin and dartos, the bowel being first forced back through the inguinal canal. The dartos is separated from the fibrous tissue as far up as possible with the fingers, and the clam put on to the cord above the testicle and epididymis, without opening the vaginal sack or exposing the testicle. A longer, stronger clam is required than in an ordinary case; and it is left on for eight or ten days, or even longer, if the operator is not satisfied that adhesion has taken place. In fact. some leave it to slough off, but we do not think that necessary. Mr. Crabb, New Aberdour, writes :—"I never use a knife, but a long steel clam—not too heavy. I push back the bowel into the abdomen, fix the clam over everything as close to the external ring as possible, and leave it till the whole mass

sloughs away." We scarcely think such a strong measure is required; in fact, it is by no means necessary to the success of the covered operation that the vaginal sack be not opened. It can easily be opened without separating the edges of the fibrous tunic from the testicle and cord, and the operator can then be absolutely certain that he is fixing his clam above the epididymis. The operation is more satisfactory, as safe, and the results equally so.

In using the caustic clam, it should be observed that a semicircular groove in the clam is very little use in retaining the caustic; and, unless the groove be rectangular, the composition is all forced out when the clam is tightened.

The operation by torsion, although known in this country since 1834, does not seem to have met with very general adoption until it was recommended and popularised by Professor Williams. With the colt secured in the usual way, we seize the testicle with the left hand, keeping the skin over it as tense as possible, and, with a good long sweep of the knife, expose the testicle, catching it with the right hand when it appears. It is then held for a few seconds until the colt ceases struggling, and the cremaster becomes relaxed, when the cord is pulled down and the torsion forceps put on close to the globus minor, but as far up the cord as to be near the top of the convolutions of the spermatic artery. We then put the serrated steel clam on above it, close to the forceps posteriorly, but fully half an inch from it at the vascular part. We prefer having an assistant to hold the clam, allowing us to have both hands to turn the torsion forceps. If the operator observes to put the greatest force to the posterior end of his forceps, the first twist will separate the attachment of the fibrous tunic and the tunica albuginea, leaving only the vascular portion to be twisted. The forceps are turned rapidly round until the testicle comes away. The clam is then gradually slackened, the operator opening and closing it a little to make sure that there is not to be any hæmorrhage. We have often had to take up the divided end of the cord, which we do with dressing forceps, and twist an additional portion. When the operator is satisfied that there is no risk of hæmorrhage, the cord is let slip.

Many of the most successful operators apply the steel clam first, divide the non-vascular portion with the knife, and apply the forceps as close to the clam as possible, twisting off the testicle, and allowing the cord to slip back at once, with, it is said, thoroughly satisfactory results. We certainly prefer to have a short length of the cord to twist, and have never seen

any evil result from leaving a small portion of cord thoroughly crushed.

We have never met with hæmorrhage after the colt was on his feet, but have had two cases in which we had to catch hold of the cord a second time and re-twist it. The last one, which occurred this season, we will shortly describe. While removing the second testicle, we observed the blood welling up from the first wound, running along the groin and over the flank, the colt being on his back. As soon as the second testicle was removed, we scooped all the blood we could out of the first wound—it can never be all got out, as it flows about as fast as we remove it—and proceeded to secure the end of the cord. This was done by seizing the fibrous tunic at the posterior angle of the incision, catching it again with forceps inside and a little further up, where the reflexion of the tunica vaginalis is attached to it, and so on hold above hold, as a sailor climbs a rope, until the end of the cord appeared from amongst the blood, when it was caught, fixed in the clam, the forceps applied, and it re-twisted. The colt was let up, and there was no more trouble. It will be observed that the cord can always be got at in this way, if done gently; but if done roughly, and the cremaster called into action, its force is sufficient to rupture the reflexion of the tunica vaginalis between the fibrous tunic and the spermatic cord.

Mr. W. Anderson, Keith, writes:—"Altogether I have done a good way over a thousand by torsion, and never had hæmorrhage but once, never a case of tetanus, scirrhus cord, or champignon, and but one case of peritonitis. If there is any swelling it is at its height about the seventh day. Have had a few cases of abscesses in the groin, but have not been bothered with them since I was more particular with disinfectants."

Mr. Crabb, New Aberdour, writes:—"I have tried the clams, hot iron, ligature, &c., but have always gone back to torsion, and have castrated over seven hundred in this way. Have had two cases of hæmorrhage, both four years ago, both yearling colts in high condition. Word was sent about two hours after the operation that the colt was bleeding badly. Found the case as stated; tried cold water, but found it of no avail. I then cast and fixed him once more, and searched for and found the cord. Strange to say, not a drop of blood was coming from the divided end, and yet for all that the blood was pouring out. I pulled out the cord, and about three inches from the end was a wound; the artery had burst, the pressure of the blood being too great, or there had been a

weakness in that part. I put a catgut ligature on the artery, cut off the remainder, and the colt did very well. I treated the other case in a similar manner."

We observe that on December 3rd, 1839, Mr. H. Daws, veterinary surgeon, read a paper before the Veterinary Association of London, advocating castration by torsion with all the zeal and enthusiasm of a new convert. We also observe that twenty-two years later, in the August number of the *Veterinarian* for 1861, the same gentleman, writing again upon castration when the ardour of youth has passed away, confesses that his early love has lost her glamour, and that he has returned to the ligature as the simplest, safest, and most scientific method. Notwithstanding Mr. Daws's evident eminence in his profession, and knowledge of his subject, we cannot help remarking that grand old men do make mistakes.

We have operated by torsion more or less for fifteen years; for the last ten years almost exclusively, and for normal colts we prefer it to any other method. Unfortunately we have not been so successful this season as usual, as out of sixty-six colts and horses of various ages operated on we have been called back to three of them. The first—a healthy, hardy-looking, well-bred colt—we were called to about ten days after the operation. Found him a little stiff, with some swelling of the sheath, but lively and eating as usual. He had an inflamed left spermatic cord, and the wound was open and discharging; but some pus must have been confined up the canal, as the attendant informed us that there was a much greater discharge, the pus running down the leg a few days after. He was all right in about a week. The second colt was an unfortunate beast all through. His dam died from the effects of foaling, and he was reared on cow's milk. We went to castrate him on the 27th April, and found him ill from cold, dull, off his food a little, somewhat fevered, and discharging at the nostrils; of course we left him. Returned on the 26th May, and found him rather thin and not very thriving like, but apparently clear of his cold. As there were only three men and a boy of us altogether, we offered to castrate him standing, but the owner did not approve of it. Cast and secured him in the usual way, and found him a determined brute, struggling all the time, so much so that he nearly fell over on the side at which the boy was while we were operating; however, we soon finished, and he got up apparently all right. Passing near the farm on the twelfth day after, the owner called us up to see him. We found him in the field, a good deal swollen about the sheath, the left cord

thickened, but, as far as we could make out, not far up into the groin, and the wound discharging. He was very lame when we trotted him, pulse over 40, mucous membranes natural, and eating fairly well. But he was thinner than when castrated. The owner was of opinion that he had hurt himself struggling while being castrated, and said he never recovered right after. But we were also told that he had taken very little exercise. Having been brought up by hand, he was very tame, would scarcely go away from the doors, and it being cold, wet weather, he was allowed to go into his house and feed there. Although badly pleased with the appearance of the colt, we did not apprehend any danger. Called again on the morning of the eighteenth day; we found him rolling about in his box, not violently, but would not stand, and trying to lie on his back. Pulse nearly 100, small and thready; temperature 102½° F., breathing rapidly, abdomen rather tympanitic, and swelling of sheath and cord almost gone, but wound still discharging. Was informed that he had been rolling about since the previous forenoon, and had been gradually eating less since we saw him. He died next evening (the nineteenth day). On *post-mortem* examination we found a large abscess, containing about a quart of pus, inside the abdomen, over the internal ring, and involving the base of the bladder and several of the intestines. The pus had been oozing through into the peritoneal cavity, and there was considerable peritonitis in the neighbourhood of the abscess, but it was not general.

The third colt, a big, strong, sluggish Clydesdale, we were called to see on the twenty-eighth day after being castrated. He was very stiff on the near hind leg, not much swelling of the sheath, but a good deal on the thigh, and a hardness right up in the groin. He seemed well in health, except the stiffness. Called again on the forty-first day; we found a large abscess pointing in the left flank, opened it, and caught about a gallon of pus. He made a rapid recovery.

Castration by the ecraseur is a very simple process, and although not very common in the north, is undoubtedly gaining ground. Not having sufficient confidence in its stopping the hæmorrhage, we have never used it but in operating in the standing position.

Mr. T. Mellis, Inverurie, referring to the ecraseur, writes:—"I have now operated on several hundreds in this way, and have not had a death. Some six or eight have had to be stuffed up for hæmorrhage, but did well after. Never had a case of scirrhus cord, tetanus, or peritonitis."

Mr. Mellis removes the testicles singly, but we understand some operators include them both in the ecraseur at once.

In operating in the standing position we use the ecraseur. We operate in the stall, or get the colt into a corner, put a twitch on, and, with an assistant at the head and another at the side with a hold of the tail, we approach the colt at the near quarter, grasping the testicle from before with the left hand—the one that seems the worst to get a hold of first—we carry the knife in the right through between the hind legs, and with one cut of the knife from before backwards liberate the testicle. We then put on the ecraseur, from the flank, including the whole circumference of the fibrous tunic in the chain in the belief that owing to the toughness of the tunic a greater length of the artery will be crushed, and after the chain gets tight we screw it off slowly.

When we attempted this method first we got an assistant to hold up the near fore foot, but we soon learned that the greatest risk was from the colt throwing himself down, and that the more he was held the readier he was to do this.

An operator who advertises largely in the North carries an iron spike with him, with a movable ring in the top of it. He chooses a suitable corner, drives his spike into the wall at a height of from four to five feet from the ground, so that he has the animal's hind quarters into the corner. He uses a strong rope with a ring at one end of it, and pulls his rope through the ring in the fixed spike from above downwards. He also uses a loop of thinner rope with a knot in the middle, passes one end of the loop over the neck in the position of the collar, the other he passes between the fore legs and draws his strong rope through it, using it as a martingale; he then passes his strong rope up the near side and through the ring on the other end, thus encircling the chest, bringing the free end towards himself over the animal's back and gives it to an assistant to hold. After all they will sometimes throw themselves down.

We confess that we are not greatly enamoured with this method. As far as our experience goes, having done about thirty in this way, there is not much risk to the operator if a moderately active man. But we are inclined to think that there is a good deal of risk to the colt. After casting and securing them with back rope, &c., or knowing of its being done in thousands without any accident, we naturally look upon the risk of injury from the casting as being very small indeed, in fact, practically nil with healthy colts if the operator knows his work. We have known of two colts each getting a fractured femur, and a third that got a fracture of the ilium,

but not a single fractured or injured back. Two of these were being operated on by empirics, the other by a veterinary surgeon with a large experience, who fortunately warned the owner that there was a risk in casting his colt, as he had been standing in the house under treatment for luxation of the patella.

In the standing position we find the older animals most easily handled. A good few of the yearling colts threw themselves violently down while we were operating, and, in our opinion, there is considerable risk in that. The operator is compelled to let his ecraseur go, and the colt may fall on it in such a way as to send the end of it up into his groin, or so as to give a considerable wrench or strain to the spermatic cord. Fortunately we have escaped that as yet, but there is too much left to chance. They often bleed a little after the operation, but it soon stops, and we have never had serious hæmorrhage, except in one case—that of a three-year-old donkey that bled very considerably. We did nothing to stop it, and it recovered all right. We don't know whether the histological anatomist can make out any difference between the structure of the spermatic artery in the donkey and in the colt, but from former experience we are inclined to think that donkeys are more liable to hæmorrhage after operations than colts. Perhaps it may be due to their lymphatic temperament and want of tone.

We understand that in Wales and the West of England a system of operating with the clam in the standing position has become a pretty common practice, and although we have had it described, we have never seen it done, and do not comprehend fully the *modus operandi* of the method.

The same applies to the method which the French term "bistournage." They apparently effect their purpose by twisting the spermatic cord in some way we do not clearly understand, without incising the scrotum.

The treatment of the colt after the operation is of the first importance. Although when the colt is at grass and the weather good we generally set him at liberty at once; it is good practice to tie him up for an hour after the operation. He may then be turned out to the field, taken up at night, and fed and treated as usual, if it is early spring; if later and the weather good, he may be left out all night. The wounds are not to be touched. If the weather is severe—cold and wet—the colt must be kept indoors and get plenty of soft food. He must also get an hour's exercise night and morning. If after a few days any swelling and stiffness appear, the exercise

must be more frequent—walking a short time when first taken out, and then trotted for a minute or so at a time, even although the whip should be required as an inducement.

Among the more important sequels of castration are hæmorrhage, peritonitis, tetanus, descent of bowels, and omentum, scirrhus cord, champignon, and abscesses.

Hæmorrhage we have already considered.

Peritonitis is a very serious and fatal sequel to the operation. We believe it may be caused by exposure to cold and wet after the operation, but are certain that it is oftener due to infection from the hands of the operator; while the colt may also catch infection from an unclean stable, or from coming in contact with animals suffering from some of the diseases we have mentioned. If the colt is seized with illness two or three days after he is castrated—if he is dull, disinclined to move, head hanging down, breathing quick and short, the conjunctive of a dull, dirty, yellowish red colour, with the pulse running up to 70 or 80, and the temperature to 106° or 107° Fahr.—it may be safely diagnosed as acute septic peritonitis. No treatment is of any avail. The colt will die within forty-eight hours. But if longer time elapses before there is any appearance of illness, and if the symptoms take some time to develop, there is room for hope, and treatment should be energetically applied and persisted in. All degrees of the affection are to be met with, from the acute case terminating fatally within three days, to the slight rise in temperature which is not recognised as anything definite. We do not believe that peritonitis caused by exposure to cold and wet will develop anything like the acute symptoms we have mentioned, and it must be more amenable to treatment.

Tetanus we have never met with but after the operation by the caustic clam. We have had two cases: one in a eight-year-old horse, the other in a yearling colt at least a month after he was castrated. And these two cases were the main reason of our giving up the clam as our usual method of operating. We have never known of recovery from tetanus after castration.

Descent of bowels and omentum are not so common with us as they seem to be in some districts. As soon as the operator observes a loop of intestine presenting he should immediately use means to prevent any more from following. Even a small loop of bowel is quite sufficient to have to return. If he has only opened the scrotum, he should return the bowel and proceed to castrate by the covered operation. If he has gone further, he should finish the removal of the testicle as

quickly as possible, return the bowel, and apply a clam if he has one, or, if not, stitch up the wound. The importance of operating under strict antiseptic precautions will be obvious to anyone in these cases, and the operator should always have more instruments at hand than he ever expects to require. If the operation is finished and the colt in the house or at liberty before the bowel descends, there is not much chance for the colt. The intestine runs out so rapidly that before the colt can be secured again there will be nearly as much of the small bowel outside the abdomen as there is left within it.

We have only met with two cases of descent of omentum—strange to say both in one season, and within twenty cases of each other. Both appeared the day after castration: one of them dangling to the fetlocks, the other past the hocks. We removed both with the ecraseur as high up as possible, and they gave no further trouble.

Scirrhus cord and champignon may be considered together, as they are undoubtedly different manifestations of the same disease. They are seldom met with except after castration by the clam, and are due to the fibrous tunic and cord becoming adherent to the outer lips of the wouud, which prevents their return into the scrotum unless separated by the finger. When we were operating by the clam, we often met with cases in which we had to run our finger round between the fibrous tunic and dartos, before we could get the end of the cord to recede within the scrotum. This almost invariably caused a considerable amount of swelling for some days, but the effect of leaving it alone was worse, as the adhesions grew firmer, and soft vascular granulation tissue formed rapidly over the wound in a mushroom or fungoid-like manner. It often occurred on one side and not on the other, due, we believe, to the clam being placed at different heights on the two cords; the adhesions forming around the cord there was least tension on. We have also met with a few cases in colts castrated by the cautery, not, we believe, due to the action of the cautery, but to the cord being left too long, or from a strain or injury to the cremaster during the operation. From this cause the end of the cord hangs out of the external wound, and being exposed to the action of air and dirt, unhealthy granulations form, adhesion takes place, allowing the irritation to be kept up and the mass grows rapidly. If the skin and dartos become adherent to the cord all round, the new growth will probably be mostly confined to the outside of the wound, forming a champignon, but if any opening is left suppuration takes place, inflammation extends up the cord, and scirrhus

cord is the result. These scirrhus cords vary much in size, from a small suppurating tumour near the end of the cord, to a long, hard, painful tumour several pounds in weight.

The same treatment applies to all of them. The animal must be cast, the skin and dartos separated from the tumour, and the diseased growth removed. We use the finger and a large blunt-edged needle for dissecting in these cases, using the knife only when we fail to effect a separation otherwise; and the mass may be removed, if it does not extend far up the cord, by enclosing the cord in a steel clam above it, and cutting it through with a sharp-edged firing iron. Or, if too far up for getting on a clam, the chain of the ecraseur can be pushed up round it, and if very thick and fibrous, a strong steel wire which will stand a greater strain than the chain. Little after-treatment is required. With cleanliness, warm fomentations, and an antiseptic lotion, they soon get all right.

Abscesses are undoubtedly the most common of the sequelæ of castration, but fortunately they are usually confined to the scrotum, and, after causing for a few days some swelling and stiffness, discharge themselves through the operation wound. But, as we have already seen in the case we have recorded, they may bring about a fatal result. We believe them to be mostly due to septic infection, caught during or subsequent to the operation.

(To be continued.)

SEPTIC PLEURO-PNEUMONIA IN CALVES.

BY E. LIENAUX, EXTRA-PROFESSOR, BRUSSELS VETERINARY SCHOOL.

THE disease to which we are desirous of drawing the attention of veterinary practitioners has only rarely been seen in Belgium. Dele, in an article summing up the observations made by Poels in Holland, notes that it was mentioned some years ago in the province of Antwerp. It has made considerable ravages in other parts of the country, and exists in an enzootic condition in a certain number of farms. We have been made acquainted during the past year with its appearance on a farm, where it has killed a dozen calves, and we have been put in possession of the viscera of one of these, which enables us to give a description of the lesions of the disease, and afforded the opportunity of searching for the germ that causes it.

Lesions.—The essential lesions are confined to the chest, as the heart, liver and kidneys sent with the thoracic organs did not offer any particular change. The anterior lobe of the two lungs, but more especially that of the right lung, was hepatised, and of a dark-red, brown, or violet hue. The corresponding visceral pleura was thickened, infiltrated, coursed by vascular arborisations, and dull in colour. (The letter accompanying the viscera mentions thoracic effusion.) On section the hepatised lobes had the marbled appearance of the lungs; thick connective-tissue bands separated the different diseased lobules; these bands were œdematous, of a white or yellowish colour, and from them flowed a clear serum; distended lymphatics were noticed in them full of lymph and fibrinous plugs.

These connective-tissue bands were but little adherent to the lobules, and it required only slight traction to separate them. In certain places the interlobular tissue was more consistent, and as if fibrous, and here it was more closely united to the pulmonary islets. The latter were dark-coloured, grey or blackish, and they sometimes had also a greyish tint. Their consistence was firm, and the section surface granular; from the latter exuded a somewhat scanty reddish fluid on pressure.

The bronchi, and more particularly the smaller ones, contained a certain quantity of muco-pus, but their walls were not altered. The bronchial glands were tumefied and infiltrated with serum.

A microscopical examination of the interlobular connective-tissue showed, in addition to the dilatation of the lymphatics in it, an accumulation on its borders of a great number of lymphoid cells, the presence of which explains the easy dissection of the lobule already mentioned.

In the lobule itself it was noticed that the alterations diminished in intensity in passing from the interlobular connective tissue towards the centre. The alveoli which were the most altered were arranged in groups, and contained a scanty fibrinous reticulum covered with pus and lymphoid cells, while here and there was remarked splenified pulmonary tissue, the less affected alveoli of which were compressed and enclosed desquamated epithelial cells and some fibrinous filaments. In certain lobules the inflammation had become sclerous; the new formation connective-tissue predominated at the periphery, where it compressed the air-cells, and was continuous with the equally thickened and condensed tissue of the interlobular trabeculæ.

This peculiarity demonstrates that the lesions commence in the interlobular tissue; otherwise the peripheral alveoli are always the most altered. This mode of commencement may be at times directly appreciated by simple inspection of the lungs sent from an infected cow-shed. The interlobular tissue in another lung sent to us some time ago was flecked by petechiæ, while the corresponding lobules were still healthy.

The lobular bronchi were filled with pus and lymphoid cells, though their tissue was but little altered, the epithelium especially being always perfectly normal. The dermic layer, however, was, like the lobule itself, congested, œdematous, and infiltrated with round cells.

From all this it might be concluded that this calf disease had been of some duration, because certain parts of the lungs showed alterations of a chronic character.

With regard to their microscopical features, the lungs we have been describing much resembled those of cattle affected with contagious pleuro-pneumonia. Nevertheless, the connective-tissue bands were not so thick, and the serum that escaped from them was much less abundant than in that malady. These alterations concord with those observed by Poels in the Dutch calves. That authority also noticed the frequency of sero-fibrinous exudates and adhesions of the pleura—a fact which has also been testified to by Van Mæghdenbergh. Poels, likewise, mentions possible inflammation of the pericardium, liver, kidneys, stomach, and intestines. These complications can be better understood when it is known that the disease is of an infectious character.

Microbe.—An examination of the muco-pus from the bronchi and of the fluid that flows from an incision into the diseased lung, demonstrates the existence of special germs in innumerable quantity and almost free from any admixture (*quasi pur de tout melange*).

These germs are motile, ovoid in form, and have obtuse extremities. They measure ·001 mm. to ·0015 long, by ·0005 mm. in breadth, and readily take different aniline tints, but are quickly decolorised by Gram and Wiegert's reagents.

Treated with a dilute watery solution of gentian violet or fuchsine, they show colour at their extremities while the centre remains clear. This peculiarity is very distinctly visible in the bacteria which have attained a certain length.

These microbes are also found in sections of the lung at the inflamed alveoli, on the margin and in the substance of the

infiltrated connective-tissue bands, as well as in the bronchial lymphatic glands. From this it might be inferred that they are the cause of the malady; but in order to verify this hypothesis we endeavoured to ascertain their pathogenic properties on animals ready to hand. With this object in view we inoculated rabbits and guinea-pigs, either with the pathological product directly obtained, or with artificial cultures. For the latter we employed bouillon, agar-agar, and gelatine.

Cultures.—The culture in bouillon is rapidly made at a temperature of 39° Cent.; in about twenty-four hours the inoculated fluid is troubled, the change becoming accentuated during the following days; then the germs are deposited and the medium becomes transparent.

The inoculation of the agar-agar in streaks, in a few days produces a thick and salient growth of a white colour if the inoculating matter has been rich in germs; but it only yields small circular discrete spots if a small number of microbes have been inoculated. The growth also takes place, but more slowly, on gelatine, which is not liquified by it.

Inoculations.—Inoculations have always afforded us identical results, whether they were made with the pulmonary fluid or with cultures.

In the rabbit, inoculation in the subcutaneous connective-tissue caused death in twenty-four hours on the average. The blood was found to be black, the intestines very much congested and marked by hæmorrhagic patches; the spleen was black and swollen; and the liver, kidneys and lungs greatly congested. The blood and parenchyma were charged with the bacteria above described as observed in the lungs of the calf, and the spleen especially contained a prodigious quantity.

Ingestion of the culture or of the virulent products gave the same results, and death also occurred in twenty-four hours. The two animals which were experimented upon in this way were not affected with diarrhœa, neither were those which had been hypodermically inoculated.

The introduction of a drop of the culture into the right lung of the rabbit produced considerable prostration, and on the second day there was a slight mucus discharge, streaked with blood, from the nostrils, which continued until death ensued—twenty-four hours after the inoculation. At the autopsy the right lung was discovered to be the seat of intense pneumonia, and in it were found the specific germs; the corresponding pleura was also inflamed, and contained an abundant sero-

fibrinous exudate of a rose colour; the bronchial mucous membrane was absolutely black, and covered with a muco-purulent secretion mixed with blood.

The hypodermic injection in two guinea-pigs yielded analogous results to those observed in the rabbits, but death was slower, not occurring until between two and three days after the inoculation. It was not possible to experiment on the calf, so that our results are incomplete; but we believe that we had to do with the germ of calf pleuro-pneumonia. In fact the microbe we isolated presented the same morphological characters, the same reaction with colouring matters, and the same pathogenic properties when introduced into the body of the rabbit and guinea-pig, as that which was isolated by Poels, and the pathogenic influence of which he verified upon the calf. A calf eight days old, another of eight weeks, and a year-old stirk were inoculated, the first in the right pleura, the second in the trachea, and the third in the lung They died, respectively, in twenty, fifty-four, and sixty-six hours, and on examination they presented the lesions of septic pleuro-pneumonia. A pig which had received the product of a culture into the right lung showed indications of the pulmonary disease; it was killed the seventh day and the lesions of pneumonia were found. The sheep and goat are refractory, according to Poels.

Galtier also attributes the pneumonia of calves to an ovoid bacterium which he identifies with that of the pneumo-enteritis of the sheep and pig.

Etiology.—From what has preceded, it results that the pleuro-pneumonia of calves is of an infectious nature. Poels asserts that the microbe must be a facultative one, as he could keep it in the soil in the same manner as the anthrax bacillus; thus is explained the persistency of the disease in certain situations.

Galtier thinks that the malady must be imparted to the mothers; on the farms where the malady prevails, the cows must be first attacked, as they are often heard to cough; but they are not seriously affected. The malady is transmitted to the offspring, which is often born before its time or is produced bearing the germ, and is not long before it contracts grave lesions, owing to its receptivity.

If this opinion be taken into consideration—for it certainly explains the appearance of the disease in new cowsheds which have not been previously inhabited—yet it is not less true that, in practice, its transmission from infected to healthy calves must be admitted. The virulent germs are scattered

abroad with the expectorations, and perhaps with the excremential matters (Poels says he has found the microbe in all the organs); these microbes, and especially those in the nasal discharge, soil the vessels in which the milk is presented to the sick animals, and which are afterwards used for others.

Nocard has described, in a broncho-pneumonia of American cattle, a bacterium in every respect like that above-mentioned; it is toxic for the rabbit, guinea-pig, mouse, and pigeon; it is also toxic for the calf, in which it causes death in forty-eight hours after it has been injected into the lung, but when introduced into the subcutaneous connective-tissue it induces an intense febrile reaction which disappears in a few days. Nocard has succeeded in infecting sheep, but has failed to do so with the pig. Was this the same infection? It was probably so.

Prophylaxis.—The preventive measures should comprise: 1. The cleansing of the locality by washing, ventilation, and disinfection; 2, the isolation of the diseased calves; 3, the disinfection of the utensils which have served to feed the sick; 4, if it were proved that the affection is due to the mothers themselves—which is easily proved in a dairy by keeping account of the history of the calves produced from the same cow,—it would be necessary to use her only for giving milk, or give up breeding from cows whose calves incur the risk of being born infected.

We have thought it advisable to direct the attention of practitioners to this disorder, as their observations would be of great value in definitely fixing its etiology and establishing its prophylaxis.

HOT WEATHER NOTES.

BY VETERINARY-CAPTAIN D. C. PALLIN, LUCKNOW.

Lathyrus Poisoning.

A FRIEND of mine was out for his afternoon ride a short time ago, on a handsome, high-stepping country-bred mare, and when at a walk she suddenly fell, appearing to lose the use of all her extremities. She quickly endeavoured to rise, but was unable to do so until the third effort. Her knees were badly cut and contused, and she was brought home with difficulty, and in a peculiar stupid, dazed condition. I was consulted next day relative to the case, and made an examination of the grain. Over a dozen "Lathyrus Sativus" seeds were found in less than half a feed, and further investigation revealed that this poisonous species of the Leguminosæ existed largely in the district where the grain was purchased.

I concluded that the "Lathyrus Sativus" was the cause of the peculiar symptoms exhibited, and gave my verdict accordingly.

"Supposed Rabies."

Within the last month a syce arrived in my compound, leading a pony. He handed me a note, which ran as follows:—"My dear P——, My d——d pony has of late taken to shy very badly at water, and this morning shot me over his head, depositing me in a pool. Can he be developing 'Rabies,' and if so, will you kindly prescribe for him. Yours, etc."

On examining the animal's eyes, I found extensive enlargement and diffused condition of the corpora nigra of the near eye. Some years ago I drew attention to this condition, as being often a cause of bad shying, and my diagnosis was given in accordance with my theory.

Peculiar Dentition.

An Arab pony was lately submitted to me for examination as to age. His tushes were completely grown, and, together with the central and internal lateral incisors, presented an almost fully developed six-year-old mouth.

The external lateral incisors above and below were still foal's teeth intact, and had no appearance of being shed. I told the owner that I considered the animal to be rising six years old, but that owing to some irregularity relative to the growth of the teeth, the sucking or milk teeth had not been shed at the proper time. He was most anxious to have the pony aged and measured for life, and requested me to remove the milk teeth. I consented, and found my task a most difficult one. Instead of having shells to deal with, as expected, I found each tooth had an enormous long, thick fang, and when drawn resembled a huge human incisor. The alveoli rapidly contracted, filled and healed; but as yet there are no signs of other teeth appearing. The operation was performed about three months ago. Similar cases are frequently met with in the human subject, but one has not previously come under my notice amongst equines.

Fungus Hæmatodes.

I treated a case of this disease last hot season, the subject being a chestnut Arab pony. After some weeks the growth and discharge were arrested, and the owner being ordered from the station, took the animal with him, so that I lost sight of the case for a time.

I subsequently heard that the disease became worse, and on the recommendation of I. V. S. J. Anderson the animal

was sent to the Lahore Veterinary College to be operated on. The eye-ball, together with its appendages and the tumour were skilfully removed by the Principal, Veterinary-Captain J. A. Nunn, D.S.O., and the animal was in a comparatively short time discharged cured.

Soon afterwards the owner and pony returned to Lucknow, and the tumour re-appearing, I was again consulted. The growth now presented the appearance of a small cauliflower, and completely filled up the orbital cavity. After about six weeks I succeeded in sloughing it away by daily dressings of solution of chloride of antimony and sulphate of copper (1—4). Healthy action being established, I changed the line of treatment to injections of white lotion. The case did well, and the patient is now at regular work. He has, however, lately developed a small, deep-seated cataract in the remaining eye, which I fear will eventually cause blindness.

An Impudent Crow.

During the drill season of '91, I was hurriedly summoned one afternoon to attend a general officer's charger.

The case was one of most severe colic, and must have been bad for a considerable time. The condition of the pulse, respirations, visible mucous membranes, extremities, etc., led me to give an unfavourable prognosis.

I however lost no time in setting to work with a view of giving relief, but obstinate mechanical obstruction had been established, and my efforts proved useless, the case at no time yielding to treatment.

Death took place late in the evening, and I at once informed the general, mentioning that I purposed making a *post-mortem* examination at 7 o'clock the next morning. Previous to death I had told him that inflammation of the small intestines was the cause of the mischief, and that we should find impaction, strangulation, or a telescoped condition (intussusception) of the gut.

Next morning I was at work, and had just found two of the above-mentioned lesions, viz., impaction and intussusception, when the general, accompanied by the colonel of the regiment I was doing duty with, appeared on the scene. The general, who looked as much cut up as if he had lost a relation, inquired if the cause of death was in accordance with my diagnosis, to which I was glad to be able to answer in the affirmative.

I then proceeded to point out for his information the extensive inflamed condition of the intestine, but he expressed

ignorance on the subject, and said his knowledge of anatomy and pathological changes was very small indeed, and, "How was he to know whether the appearances presented were healthy or diseased?" I at once commenced to demonstrate, and placed about two feet each of the healthy and diseased intestines on a neighbouring wall.

Both general and colonel appeared much interested, and were paying great attention to my dissertation on the two pieces of intestine, when a crow came down out of a tree under which we were standing, and with a rapid swoop carried off one of the pieces, and returning to his original place sat with the long piece of gut hanging and swinging from his beak.

I had frequently heard the general use strong language on parade, but never did I hear him express himself as on this occasion. The colonel laughed most heartily, and remarked that the crow displayed great intelligence in selecting the healthy portion instead of the diseased.

PILOCARPINE.

BY J. DOWLING ALLMAN, A.P.S., LOND.

THIS substance, which is now much used in human and veterinary practice, is the active principle of Pilocarpines *(Jaborandi)*. It is generally administered subcutaneously, but it is also given internally, and is chiefly employed for the purpose of eliminating watery effusions—as in such maladies as pleurisy and ascites, and to remove morbid products from the system, and relieve the kidneys by throwing the work of elimination on the skin instead. It will also lower temperature, by the evaporation of the moisture induced. It requires very great caution and clinical observation in its use, as it is a very powerful agent, and is contra-indicated in asthenia and weak heart. Large and indiscriminate doses cause nausea and vomiting, with profuse salivation and perspiration. The pulse and respiration are quickened, the temperature is lowered, and the patient is left much exhausted. Its use has been suggested by some veterinary writers, in conjunction with the alkaloid *Physostigmine*, in cases of abdominal pain with impaction, for the purpose of increasing the peristaltic action of the *Physostigmine*; but I believe this is a plan that is now discarded, and I am not surprised, as I never did see the utility or the practicability of using two such powerful alkaloids simultaneously. It is a mode of practice that I never countenanced, and looking at the physiological and therapeutical action of the two drugs, I should say it was

not logical or scientific. Let us see what are the physiological symptoms of *Pilocarpine* and *Physostigmine*. *Pilocarpine* slows the heart, by stimulating its inhibitory ganglia; whilst *Physostigmine* causes a rise in the arterial pressure, by increasing the power of the inhibitory nerves, and the heart's action is more rapid. *Pilocarpine* is undoubtedly a valuable addition to veterinary therapeutics, and can be used with considerable success in the diseases already mentioned above. The dose hypodermically is from ½ to 1 grain.

MALADIE-DU-COIT IN NEBRASKA.

BY J. WILSON-BARKER, M.R.C.V.S., ASSISTANT, PATHO-BIOLOGICAL LABORATORY, STATE UNIVERSITY, LINCOLN, NEBRASKA, U.S.A.

HAVING recently had the opportunity of investigating an outbreak of the above disease in this State, I take the liberty of forwarding to the VETERINARY JOURNAL a few notes and observations on this curious disease.

Regarding the history of the disease in the United States, it is said to have been brought into the country by an imported French stallion during 1883 or 1884. The complete history of the outbreak will be found in the VETERINARY JOURNAL for September, 1890. That outbreak is said to have been effectually stamped out in the course of four or five years, and nothing more was heard of the disease until this year, when it mysteriously appears in this State. On further investigation at the seat of the outbreak, I found that it had been raging with marked severity during 1890 (several stallions and mares having died), and that it was not until the breeding season of this year was about to begin that the matter was taken up seriously by the horse-owners in the district. The origin of this outbreak is at present untraced, it being exceedingly difficult to do so, both on account of the extraordinary nature of the disease and the conflicting reports one hears.

Character.—"Maladie-du-Coit" is a malignant, specific venereal disease affecting solipeds. It is a contagious malady, and is more of a chronic than an acute nature. Animals affected rarely, if ever, recover. The disease has been called "Equine Syphilis," but this I think is a misnomer, and I therefore hope that English Veterinary literature will before long find a more appropriate name for it.

In referring to Fleming's "Manual of Veterinary Science and Police," two forms of the disease are said to exist—a benign and a malignant form. But on reading through the

so-called benign form, one is struck by the resemblance the symptoms present to another venereal disease, "Eruption-du-Coit." This disease is said to attack bovines chiefly, but does undoubtedly attack equines. Now, in neither outbreak of Maladie-du-Coit in the United States have the slightest signs of ulceration been observed, or any cicatrization indicating pre-existing ulcers. I have here before me the report in the *Veterinarian*, by Dr. W. L. Williams, who investigated the first outbreak in this country, and he alludes to the total absence of ulceration; and as regards my own observations, I must agree with him.

Eruption-du-Coit is an examthamatous disease, with an incubative period of from three to six days, and runs a regular course in from eight to twenty days, according to the severity of the attack. In this disease ulcers may be observed in the vagina, on the penis, and on other parts of the body (flank, head and neck). Foals sucking affected mares contract the disease, and present similar ulcerations about the lips and nose. This disease is well known in Nebraska, and though transmissible it is curable. Stallions known to have been permanently cured, are now serving mares, and have had no recurrence of the disease. A considerable number of mares suffering from Maladie-du-Coit had foaled, and so far as I could gather and see, the foals remained quite healthy; some of the foals I saw were two months old.

Symptoms in the Mare.—These appear in from eight to fourteen days. They are constant œstrum, associated with the discharge of a few ounces of thick, yellow urine, swelling of the lips of the vulva, and now and then small petechial spots can be seen on the mucous membrane of the vagina and vulva.

There are also restlessness and paddling about with the hind feet; lameness—which, in some cases, is very much marked, and nearly always in the near hind leg—swelling of the mammary glands; often swelling of the hind legs; weakness, and finally paralysis of the hind quarters. Sometimes the paralysis comes on very suddenly, and in these cases the mares usually die in a few days. In some cases they appear to get over the paralysis and improve, though they are still very dull, and eat fairly well; but they do not revive sufficiently to do any work, while a few improve further, and appear to do well. When the symptoms increase rapidly, there is often a profuse discharge of a thick, opaque, whitish ropy matter. In chronic cases, the discharge is very irregular in its appearance, and then only comes away in small quantities.

A large number of mares did not conceive, while many that did aborted in from three to five months, while others produced fine healthy foals.

One curious phenomenon associated with the symptoms in both stallions and mares, is the peculiar depigmentation around the lips of the vulva and anus, and in some cases in other parts of the body, particularly about the nose and around the eyes. In one mare I saw, the loss of pigment around the anus and vulva was very great. It usually commences in small round spots, and gradually extends, the areas ultimately uniting. With the exception of the loss of pigment, the skin looks perfectly normal, never ulcerates, is always level with the surrounding surface, and in some cases the normal colour comes back again, and may afterwards disappear and reappear.

In one or two cases I noticed round, elevated and hard swellings, two or three inches in diameter, on the neck and other parts of the body; but they generally disappeared in a few weeks. I failed to find a single case in which there was any pruritis present, though in other reports I see it mentioned. Enlargement of the submaxillary lymphatic gland and discharge from the nostril, are often described with the symptoms, but I am inclined to look upon these as complications.

Symptoms in the Stallion.—The first symptom frequently noticed is the great length of time the stallion remains upon the mare, and after coiture the penis protrudes and hangs limp for a considerable time. Now and then the prepuce of the penis swells, then the scrotum, testicles, and both hind legs. These swellings vary very much, in some cases reaching an enormous size, even swelling along the abdomen to the fore legs. These swellings are hard, and when very large often burst in places, and discharge a semi-aqueous fluid. When these swellings are slight, they generally disappear if the animal is worked.

Lameness occurs behind, and, as with mares, the near hind leg is the one that is always involved; then there is progressive weakness and, finally, paralysis. The sexual appetite in many cases is not decreased. Depigmentation in one stallion was very marked, particularly about the genital organs (the whole of which had changed from black to white), head, tail and anus. There was very rarely any noticeable discharge from the penis, and no petechial spots could be found. There was not the slightest sign of any ulceration in

any of the five stallions I saw, and they had all been diseased for more than six months. One stallion we have at present, and have had for the last six months, under observation, and yet there are no signs of ulceration; but the lost pigment is returning in many places.

The symptoms in the stallion vary very much, some of the stallions being emaciated to an extraordinary degree, while others only show swellings of the genital organs and hind legs. One stallion had large, round, prominent swellings on the near hind leg, with a few on the quarters; these the owner had blistered, which brought them to a crisis; they burst and discharged for a time, and then healed up. Some entirely disappeared, leaving a dry, scabby, hairless patch; while other lumps remained. The horse was in first-rate condition. The owner informed me that now and again his scrotum became swollen, but that the swelling rapidly subsided when the horse was at work.

Most of the cases I saw being chronic ones, there was no noticeable elevation in the temperature; the pulse in many cases was weak, while in others it was normal. The visible mucous membranes were pale and œdematous, particularly those of the eyes.

The above are the most prominent symptoms in the stallion and mare that came under my observation; they are not described in the orthodox book form, but I hope the reader will be able to gather something from them.

Autopsy of a Mare at the Laboratory.—This mare presented a somewhat remarkable case. She was a six-year-old roan mare about 15 hands high, and had been served in July, 1891, by a diseased stallion; she did not conceive, and did not show any other signs of illness other than being very lame on her near hind leg, and slightly weak behind. When seen first, I examined the limb most carefully, but could find nothing to account for the lameness. She was in good condition, and ate well. Three weeks after my visit to the farm where she was, I had her brought to Lincoln, and I was perfectly astonished at her condition, she being much emaciated, excessively weak behind, and walking now and again almost on her hind fetlock joints. Sixteen days after her arrival her condition was so much worse that she was destroyed. As we required the blood for bacteriological investigation, we killed her by dividing the spinal cord between the atlas and dentata.

The autopsy was made by Dr. F. S. Billings. There was no secretion to speak of in the vagina; vulva and clitoris swollen; a few small white spots could be seen in the black skin around

the vulva. The interior of the vagina was thickened, swollen, and of a yellowish-grey colour; on the inside of the vulva numerous patches of a diffuse reddish colour could be seen; the larger blood vessels of the vagina were much engorged; the lining membrane of the uterus was exceedingly swollen, and covered with a thick, dirty yellow, viscid coating. The right ovary was double the size of the left, and contained many small cysts and a pear-shaped mass of orange-yellow tissue, all held together by dense connective tissue. The left ovary contained a few small cysts; otherwise it appeared normal.

The stomach and intestines were normal. The lymph glands were indurated. The spleen was swollen, and the capsule thickened and of a greyish-white colour; its weight was 3 lbs.; projecting from its surface were numerous dense, oval projections, varying in size from a small pea to that of a large cherry, some of which were circumscribed, while others extended in all directions by striæ of a greyish-white tissue. There was little blood in the organ. The liver, generally, was thickened; its capsule was also thickened, and was of a greyish-white colour; the acini could not be seen, and the cut surface was moist, glistening, and of a reddish-brown or slate colour. The kidneys were swollen, and their capsule diffusely adherent. The substance of the kidney, though flabby, was quite resistant to the knife. The cortex was of a grey colour, and the malpighian bodies were beautifully injected; the tubes were also very prominent, while the medullary portion was of a dark brownish-red colour.

The lungs showed numerous nodules, which upon examination proved to be due to a previous attack of bronchitis.

The heart muscle was of a greyish-brown colour, anæmic and friable. In the lumbar portion of the spinal cord the pia mater and central canal were engorged. The substance of the cord was œdematous, and there was a slight quantity of fluid in the central canal. The grey substance was very much atrophied, and marked by small white spots.

The pia mater of the brain was much engorged; its substance was dry. There was no effusion in the ventricles. Cultivations were made from the uterus, ovaries, liver, spleen, kidneys and spinal cord; while blood was collected from the jugular vein in small sterilized bottles. Various cultivating media were employed, but the only growths obtained were on glycerine agar and blood serum. Upon these grew a non-motile short bacillus. An extensive examination of the blood revealed the presence of an apparently similar bacillus, form-

ing zooglœa. These we obtained by using the following blood-germ stain :—

Methylene Blue, 80 per cent.
¼ per cent. Eosin in 70 per cent. Alcohol.
Alcohol, 20 per cent.

This staining, with the aid of heat, coloured the bacilli blue and the surrounding blood a light pink colour.

Unfortunately, we did not succeed in keeping the germ growing. Two large dogs were inoculated — one in the anterior chamber of the eye—with mashed-up spinal cord that had been in glycerin, as recommended by Nocard, but this yielded no result. The other dog was inoculated in the abdominal cavity with one cubic centimetre of the blood collected from the jugular vein, but this also had no result.

The bacillus from the above-mentioned media was transplanted into glycerine bouillon, and with this growth some cotton wool was saturated and placed in a mare's vagina, but here, again, no result was obtained.

By referring to *The Lancet* for June 11, it will be seen that a micrococcus is said to be the cause of the disease. Further investigation, for the present, has had to be delayed, owing to the want of material to experiment with. Dr. F. S. Billings will, I hope, before long contribute a few notes on the pathology of the disease; so for the present this paper must close.

I enclose a photograph, taken by myself, showing the depigmentation on the under surface of the tail and around the anus of the black stallion we have still under observation.

Editorial.

CONTAGIOUS PLEURO-PNEUMONIA IN CATTLE FROM CANADA AND THE UNITED STATES OF AMERICA.

ANOTHER invasion of contagious Pleuro-pneumonia has caused some excitement, and a somewhat considerable slaughter of cattle in Scotland; but on this occasion the disease has been carried to our shores for the first time by Canadian cattle. It was reported that on September 29th, a cargo of Canadian cattle from Montreal was landed at Dundee, and was sold, together with a similar cargo, on October 6th—the animals being then distributed throughout the country. Three days later a cow from one of these cargoes, which had been taken to a farm in Fifeshire, was

found by the local veterinary surgeon to be affected with Pleuro-pneumonia. The Board of Agriculture at once took steps to trace the whole of the Canadian cattle sold from the cargoes referred to, and found on examination that two others were affected with Pleuro-pneumonia.

It has also been reported that one or two of the native cattle, which had been associated with some of the Canadian cattle, were found to be affected when slaughtered, for all of the imported animals and those among which they had mixed were killed. As all have been destroyed, there is no more disease in that part of the country, and there can be no doubt that the Board of Agriculture was quite justified, in view of the discovery of this scourge, in interdicting further importation of live cattle into the United Kingdom from Canada. But though the Board of Agriculture appears to have entertained no doubt as to the nature of the disease, and to have acted on its belief with the greatest energy, it is unfortunate that this belief is not universal. Professor Williams, addressing a meeting of the Fifeshire Local Authority at Cupar, on November 1st, asserted that he could find no trace whatever of the disease in lungs submitted to him from one of the affected cattle, the lesions being those of Corn-stalk disease or Broncho-pneumonia; and Mr. Wallace, Professor of Agriculture in the University of Edinburgh, in a letter to the *Times* soon after, denies the existence of the malady in the lungs he inspected. The veterinary authorities in Canada confidently assert that contagious Pleuro-pneumonia is entirely absent from that great country; and the United States authorities no less emphatically deny the presence of the malady in the regions from which cattle are sent to England, though since its detection among Canadian cattle in Scotland, there have been found six cases among two cargoes from the States, and which were slaughtered at Deptford and Birkenhead. These cattle had been shipped at Baltimore, Boston, and New York. A very trustworthy and absolutely impartial authority in America writes to us that "England is perfectly safe in admitting their Western cattle. There is not a contagious cattle disease in the whole West. You can take my word for this; our cattle cannot possibly come near a centre of danger, past or present, in their transport to ships, and no Eastern cattle go abroad."

Another singular circumstance connected with these mysterious importations of the disease, is, we believe, the fact that it has not yet been found among American cattle landed in France, though considerable numbers arrive there,

but the Corn-stalk disease has, though that new non-contagious disease has not yet been officially recognised here.

There are some circumstances connected with the appearance of contagious Pleuro-pneumonia among cattle from the American continent which need clearing up, if not from a sanitary, at least from a scientific point of view; for we maintain that it is discreditable that there should be any mystery about its origin, and that such a serious difference of opinion should exist among veterinary surgeons as to whether it is contagious Pleuro-pneumonia, or another and a benignant disease. Surely the latter question could be solved in a few days by an experimental demonstration, which would put a stop to further discussion and scandal. It should be remembered that the first cases of Corn-stalk disease detected in France were mistaken for the contagious disorder by experienced veterinary surgeons of the Paris abbatoirs, and Professor Nocard himself was in doubt until he resorted to a serious histological and pathological investigation of these cases. The virus of contagious Pleuro-pneumonia has such a startling action when inoculated into bovines, but into no other than these, that the inoculation of one or two young cattle should decide the vexed question, and thus abolish a source of international complaint and colonial dissatisfaction. We can surely do what has been so promptly accomplished in France by its able veterinary pathologist. A large sum of money is expended at the Royal Veterinary College in pathological investigations, and with small evident result. Here is an instance in which much benefit would accrue, and which needs little skill or money—indeed, it is within the scope of a humble practitioner of veterinary medicine, and yet it would solve a very momentous question.

TWO CASES OF TORSION OF THE UTERUS IN THE MARE.

In the *Wochenschrift für Thierheilkunde*, quoted in the *Recueil de Med. Vétérinaire* for August, 1892, the very rare accident of torsion of the uterus in the mare is alluded to by Münich, Veterinary Surgeon at Straubing, who describes two cases, the only ones he had met with during 22 years' practice. The extreme infrequency of the occurrence may be inferred from the fact, that Franck in his *Handbuch der Thierärzthichen Geburtshülfe*, only gives 7 instances, 5 of which had a fatal termination.

Münich's two cases also resulted in death.

The first case was that of a mare, fifteen years old, in an advanced stage of gestation, which was with difficulty brought to the infirmary of this practitioner. The history of the case was as follows: For some days the mare had exhibited

symptoms of colic, stretched out frequently as if to micturate, and the appetite had completely failed. A vaginal exploration revealed torsion of the uterus to the left side; while the foul odour of the vagina, and of that of the small quantity of fluid which escaped from that canal, testified that the fœtus was dead and beginning to decompose. The general condition of the animal was very serious. The pulse was imperceptible; the heart could not be auscultated because of the violent tremblings of the scapular muscles, and its beats could not be counted; the respiration was hurried, the abdomen greatly distended, and the eyes glassy—in short, there were all the signs of approaching dissolution.

Under these circumstances there was no hope to be derived from extraction of the fœtus—in fact, the mare succumbed in four and a-half hours after admission to the infirmary. The necropsy was made the next day, and the following lesions were observed: Complete torsion of the uterus to the left; placenta detached and putrefied; fœtus advanced in decomposition and emphysematous. The uterine mucous membrane was of a dark reddish-blue tint and much thickened, while the submucous tissue was infiltrated. In the abdomen there were signs of acute inflammation of the peritoneum, and there were also several pints of effused grumous and foul-smelling serum. The liver was clay-coloured; the spleen was enlarged and gorged with black, semi-coagulated blood; the lungs were emphysematous, and the pleura, pericardium and endocardium were covered with petechiæ and ecchymoses.

Death had therefore been due to septic metro-peritonitis.

Fifteen days after this case, Münich was called upon to examine a pregnant mare which, according to the owner, had been attacked with violent colic. The animal was six years old, extremely vigorous and well nourished. Münich found it lying down and straining violently; and an examination *per vaginum* led him to conclude that there was complete left-sided torsion of the uterus. He accordingly decided to roll the mare immediately, and having had her led to an appropriate place which had been prepared, she soon lay down; she was then properly secured, and while Münich, having introduced his arm into the vaginal canal, maintained it there, eight strong men rolled her on herself from right to left. It required eight turns or rolls to effect reduction of the viscus, and when this was effected the expulsion of the fœtus immediately commenced; its head was slightly deviated, but this being put straight birth ensued with remarkable rapidity.

Notwithstanding the fœtus having been got rid of, the pains continued with the same violence. The foal appeared to be, when compared with its dam, singularly small, and this fact, together with the continuance of the pains, induced Münich to explore the uterus in order to assure himself if the prolongation of the expulsive efforts might not be due to the presence of a second fœtus, when, suddenly, convolutions of the small intestine escaped *en masse* by the vulva.

In vain the operator attempted to oppose this extrusion of the intestine; under the influence of the straining, which an injection of morphia could not subdue, it was expelled as soon as returned, and at last a considerable mass of intestine hung down as low as the hocks. An examination of the uterus discovered a tear in its upper portion, near the pelvic inlet, and exactly at the point where Münich had thought he felt the strongest tension before the operation of untwisting the organ.

With the concurrence of the owner of the mare, she was destroyed by section of the carotid arteries. A necropsy was not made. There was reason to believe that the torsion had at first merely caused a rupture of the muscular layer of the uterus, and that it was only afterwards, and owing to the severe straining, that the intestinal mass effected its complete rupture.

The foal died in twelve hours after its birth.

THE TREATMENT OF CANKER IN THE HORSE'S FOOT.

THE treatment of the diseased condition of the horse's foot usually known as "canker" is, as is too well known, followed with no beneficial results in some cases, while in others, success, partial or complete, demands much time, skill, and care. The treatment has been chiefly medical, though the value of operative surgery has been frequently demonstrated. In the *Repertorium der Tierheilkunde* for the present year, Professor Hoffmann, of the Stuttgart Veterinary School, describes the results of operation in a case he took in hand, and in which, ignoring the recommendation given by some authorities not to cut the diseased parts, and so cause profuse hæmorrhage, he resorted to the heroic but sanguinary measure proposed by Dietrichs in 1845, and carried out by others since then with a good deal of success.

The horse upon which he operated was affected with the disease in an inveterate and chronic form in all its feet, and was considered a very serious case, as the sole and wall were involved. Chloroform having been administered, an Esmarch's hæmostatic bandage was applied to the leg about to be operated upon. Then all the horn necessary to be removed was cut away and the fungous surface completely exposed. With a large sharp curette all the "vegetations" were thoroughly excised to the very bottom; it was known when the healthy tissues were reached, by their greater density and resistance, and their lighter greyish tint, when compared with the soft and reddish-yellow fungoid masses. Then the parts were well washed with an antiseptic fluid, and the operation was finished by the final removal of any suspected patches yet remaining, by means of a small curette. The bleeding surface was smeared with a one per cent. corrosive sublimate ointment, and powdered with a mixture of iodoform and tannin in equal parts; after which the foot was covered with a large compressive bandage and soft material to make firm and equable pressure. On the removal of the Esmarch bandage there was slight oozing of blood through the dressings, but this soon ceased.

After the operation on all of the feet, the horse showed signs of suffering pain, but the appetite was not in abeyance.

The dressing was renewed twice at an interval of four days, then a shoe was put on each foot to permit of the ordinary compressive dressings being applied. Nitrate of lead was employed to complete the healing process at those points where the vegetations had not entirely disappeared. In a month the cure of this chronic case was nearly complete, for soon after the operation the wounded surface assumed a healthy aspect and was not long in becoming covered with horn.

Hoffmann only describes this one case, but he intimates that his colleague, Professor Imminger, has been successful with others by this mode of treatment.

CONTAGIOUS PLEURO-PNEUMONIA IN WILD BUFFALOES.

THE *Live Stock Journal* has the following interesting announcement:—"A gentleman who recently returned from an up-country expedition in British East Africa, informs one of our correspondents that contagious pleuro-pneumonia is killing thousands of wild buffaloes annually in Ukambani, Griamaland, and Massiland—immense territories in that part of the African continent. At the present rate of mortality the complete extinction of the buffalo in these parts is threatened. The natives of Massiland have hitherto subsisted entirely on meat, generally raw, but occasionally slightly cooked. A famine will be imminent in a few years from the loss of their principal food,

the flesh of the buffalo. Already the scarcity of buffalo beef has made itself severely felt; so much so that some of the natives have been compelled, greatly against their inclination and taste, to cultivate and consume small quantities of grain. This practice, however, will never be carried out on sufficient scale to compensate the loss of their favourite food, and keep off for impending starvation of thousands of the inhabitants of Massiland, which, our authority says, cannot fail to result from the ravages of pleuro-pneumonia in British East Africa.

TEXAS FEVER IN CATTLE.

At a meeting of the Society for the Promotion of Agricultural Science held lately at Rochester, N.Y., Dr. Salmon, Chief of the Bureau of Animal Industry, Washington, D.C., delivered an address on the cause of Texas Fever in cattle, in which he mentioned the following phenomena :—

1. The disease is not directly transmitted from the infectious to the susceptible animals, but the infection is distributed to the pastures, pens and roads, and the disease is contracted from these. 2 Infected pastures are not dangerous until a certain period in the summer, no matter at what period of the spring they are infected. That is, the infection when introduced early in the spring remains dormant for a considerable period, the length of which depends partly at least upon climatic conditions. 3. The cattle which carry the infection are apparently healthy and insusceptible to the disease. 4. In most, if not all, cases sick cattle do not distribute the infection either upon pastures or to other cattle. 5. A section of the country bordering upon the South Atlantic and Gulf coasts is permanently infected, and susceptible cattle taken there contract the disease, while the native cattle of that section disseminate it when they are taken to other sections of the country. 6. The apparent period of incubation varies greatly under different circumstances. Immediately after the infection of pastures it is thirty to fifty days. After the pasture has been infected for a month, this period is reduced to ten to fifteen days. 7. Outside of the permanently infected district, the disease disappears with cold weather, and the infection does not survive the winter. Within the permanently infected districts, the infectious principle may survive very cold weather.

The first successful step in the investigation of the cause of the disease was the discovery by Dr. T. Smith of a parasite in the red globules of the blood. This parasite rapidly destroys the red corpuscles, the colouring matter being excreted through the kidneys, and causing the red urine which is characteristic of advanced stages of the disease. This micro-organism resembles that found in malarial diseases of man, and it becomes important to learn how in the case of cattle such a parasite could be so rapidly disseminated, and with such fatal effects.

Experiments show that the parasite is generally carried by the ticks which infest southern cattle. Ticks living on such infectious cattle, and sucking their blood, must of necessity take the parasite into their bodies. The curious thing about it is that the parasite is transmitted through the egg to the young tick, and the latter, getting upon susceptible cattle produces the disease. The large ticks do not migrate from one animal to another. They remain upon the first host until adult, then the females drop to the ground, lay their eggs, and die. A week may elapse after the tick drops to the ground before the eggs are laid. After this, from two to three weeks are required according to the prevailing temperature, for eggs to hatch. The young ticks are then ready to attack the first bovine animal which comes their way. After getting upon such an animal, if it is susceptible, it will be attacked by Texas fever in about ten days.

As a remedy for the Northern States, at least, it was suggested in the discussion which followed, that if the cattle from the South were thoroughly washed with kerosene oil, it would destroy the ticks which carry the parasite.

RABIES IN MADEIRA.

THIS island has long been alluded to as one of the places in the world that remained free from rabies. This, it appears, can no longer be said, for it is reported that a rabid dog was recently discovered at Funchal. How the animal contracted it does not appear, but the authorities have shown the most surprising promptitude in recognising the supposed needs of the situation by deciding forthwith on the establishment of an antirabic institute. With this view they have invited Senhor Roque da Silveira, the Director of the Veterinary Hospital at Lisbon, to go to Madeira to superintend the equipment and organisation of the new establishment. It does, indeed, appear absurd to start such an institution, when the disease could be so easily stamped out, and kept out of that island.

INHIBITION OF GROWTH IN SHEEP AFTER THYROIDECTOMY.

THE Vienna correspondent of the *Lancet* states that Dr. von Eiselsberg, assistant of Professor Billroth, in continuing his researches on the influence of the extirpation of the thyroid gland on the growth of animals, has found considerable differences in the development of sheep after thyroidectomy. In two lambs soon after birth the thyroid gland had been extirpated, and now, after eight months, the animals showed the following differences from two other lambs of the same age: The bodily weight was only 10 and 14 kilogrammes in the operated animals, while it was 35 and 27 kilogrammes in those not operated upon. The hind part of the head and the abdomen of those operated on are considerably enlarged, and gives to them a peculiar appearance, their tails are only rudimentarily developed, their testicles are atrophied, their fleece is bad, their intelligence is lower than in the normal animals, and they are suffering from chronic bronchial catarrh with viscous secretion similar to that which is often observed to occur in human beings after thyroidectomy. Various therapeutical experiments will shortly be made on these animals, which were demonstrated at the last meeting of the Vienna Medical Society.

RINDERPEST AND FOOT-AND-MOUTH DISEASE IN CENTRAL AFRICA.

A VALUED correspondent, under date of October 11th, writes to us from Natal:—"I have lately become aware that a deadly epizooty—believed to be rinderpest—is raging in the German territories in East Africa, between the great lakes and the Indian Ocean, and it is said to have done much damage in Zanzibar, of which, however, I have as yet had no particulars. It has worked its way down from the northward, and has reached as far as lake Nyassa, and in a few months will probably be at the Zambesi; when nothing will prevent it from spreading all over South Africa, in which case it will be ruinous. . . . The task of combating the disease seems hopeless, for we have not only inertia to overcome, but also the prejudices of antagonistic races, when aroused, and beyond all that the native tribes, who do not understand regulations for preventing disease, and the great necessity for fighting it.

"Foot-and-mouth disease is raging in Bechuanaland."

ROYAL COLLEGE OF VETERINARY SURGEONS.

Fellowship Degree.

An examination for the above degree was held in London on the 27th October, when the following gentlemen were admitted Fellows of the Royal College of Veterinary Surgeons:—

A. E. Branch	Colchester.
E. W. Hoare	Cork.
T. H. Hobson	Leicester.
C. F. H. Skelton ..	Leyton, Essex.
Alexr. Levie	Thornhill, N.B.
R. Glover	Stratford, Essex.
H. J. Dawes	West Bromwich.
O. G. Barrow	Dorchester.

Arthur W. Hill, *Secretary.*

Reviews.

A Treatise on Meat Inspection. By L. Pautet. (Paris: Asselin and Houzeau, 1892.)

Messrs. Asselin and Houzeau, booksellers to the Faculty of Medicine at Paris, and to the Central Society of Veterinary Medicine, have just published a new work, which is a valuable addition to French veterinary literature, and is, at the same time, of considerable interest to public hygiene. The exact title of the work is "Précis de l'Inspection des Viandes," and its author is M. Pautet, Veterinary Surgeon and "Inspecteur des Viandes," at Paris. This book is a *resumé* of everything pertaining to sanitary meat inspection, and it deals more especially with the contagious diseases of animals which are transmissible to man, while, at the same time, it sets forth the sanitary measures French law has taken against these diseases. It offers a most complete statement regarding the questions of tuberculosis, as well as of these contagious diseases. The author reviews the numerous parasitical diseases man and animals are subject to; he also devotes special study to meat derived from too young and too lean beasts, and to the inspection of poultry, game, and fish. The principal kinds of edible mushrooms have also a special chapter. Readers will be at the same time agreeably interested on finding excellent illustrations representing numerous pathological conditions. This artistic part of the work has been done by M. Pertus, Veterinary Inspector of Meat at Paris. This work show us the considerable progress which has been effected in France in hygienic science. We are especially pleased to observe the large domain our French colleagues have conquered in this realm of hygiene, and the elevated part they play in the preservation of the public health.

C. Teyssandier.

The Etiology and Pathology of Grouse Disease, Fowl Enteritis, and some other Diseases Affecting Birds. By E. Klein, M.D., F.R.S. (London: Macmillan & Co., 1892.)

The diseases of birds receive but little attention from veterinary surgeons, especially in this country, for reasons which are not far to seek; yet some of these diseases are very prevalent and destructive, and because of this have at times received attention from eminent pathologists and bacteriologists. Wild birds are no more exempt from these maladies than those which are domesticated, and heavy pecuniary loss is often experienced from epizootic

visitations of this kind among game birds. One of these wide-spread maladies is that which for a long time has been known as the grouse disease, and so serious have been its ravages that it has engaged the skill of several scientists; but, notwithstanding their investigations, much diversity of opinion has prevailed with regard to the nature of the scourge, the chief of these being that it is due to a nematoid worm belonging to the group of strongyles or to tape-worms, that it is an infectious fever, and that it is caused by a pathogenic bacillus. The upholder of the first opinion was the late Dr. Cobbold, and of the last is the well-known bacteriologist and pathologist, Dr. Klein, who has just published a monograph on this malady, and also two other diseases of birds. For many years Dr. Klein has made a particular study of this grouse disease, and his more recent researches confirm the opinion he enunciated early in his investigations. He has recently had ample opportunity afforded him for studying the disorder in the regions in which it is seen, and his inquiry and experiments demonstrate that the *causa causans* is a bacterium—for the action of this organism is much favoured or deterred by circumstances which were at one time supposed to be operative in producing the malady. The microbe belongs, according to Dr. Klein, to the group of pathogenic organisms which do not produce spores, and can be cultivated. Attenuation of the virulence of the germ can be obtained by a temperature below 60° Cent., and mice inoculated with this weakened virus were found to be protected. Of course the difficulty would be great—if not insurmountable—in protecting grouse in this way; and, indeed, the prevention of the disease in any way is a serious matter for consideration.

Sections of the work are devoted to Fowl Cholera, Fowl Enteritis, and cramps in young pheasants, all of which are due to bacilli. It is unnecessary to say that Dr. Klein treats of these disorders in a scientific manner, and the references to his experiments show how earnestly he has pursued their study. The value of the book is enhanced by the addition of fifty-three micro-photographs and micro-photograms of the diseases, chiefly by the eminent micro-photographer, Mr. Pringle.

ANIMALS' RIGHTS CONSIDERED IN RELATION TO SOCIAL PROGRESS. BY HENRY S. SALT. (London: Bell and Sons, 1892.)

This is another of many books published in favour of the humane treatment of animals. The author states that its object is "to set the principle of animals' rights on a consistent and intelligible footing, to show that this principle underlies the various efforts of humanitarian reformers, and to make a clearance of the comfortable fallacies which the apologists of the present system have industriously accumulated." Whether he has succeeded in his aim must depend upon the views of those to whom he appeals, but he certainly presents his own views in a very clear and unimpassioned manner, and with much of what he says we entirely agree. His plea on behalf of the merciful treatment of animals commands our entire sympathy, as it must also do that of every member of the veterinary profession, in whose ranks have been found the most fervent advocates, and the most energetic supporters of the *jus animalium*. It was one of the early representatives of our profession, we believe Lawrence, who stated that "man is indispensably bound to bestow upon animals, in return for the benefit he derives from their services, good and sufficient nourishment, comfortable shelter, and merciful treatment; to commit no wanton outrage upon their feelings whilst alive, and to put them to the speediest and least painful death when it shall be necessary to deprive them of life."

The writer's arguments are sound, and we are sure the majority of them will find few dissentients. For instance, in dealing with the abuse of sentimental affection towards pet animals he remarks that "it seems to be forgotten,

in a vast majority of cases, that a domestic animal does not exist for the mere idle amusement, any more than for the mere commercial profit, of its human owner; and that for a living being to be turned into a useless puppet is only one degree better than to be doomed to the servitude of a drudge. The injustice done to the pampered lap-dog is as conspicuous, in its way, as that done to the over-worked horse, and both spring from one and the same origin, the fixed belief that the life of a 'brute' has no moral purpose, no distinctive personality worthy of due consideration and development. In a society where the lower animals were regarded as intelligent beings, and not as animated machines, it would be impossible for this incongruous absurdity to continue." There is much food for reflection in what is said as to the morality of sport; though we cannot altogether range ourselves with him in all he states in the chapter on experimental torture. In this country animals are legally protected from wanton cruelty and unnecessary experiment, and the restrictions imposed upon the physiologist and pathologist are sufficiently severe to prevent cruelty, while they ought not to hamper the progress of the healing art. Nature herself is a cruel experimenter, as a walk through the hospitals—human and animal—only too painfully shows; and in resorting to experiments in order to ascertain the causes of human and animal suffering, the scientist should be animated by the highest motives, while he is mercifully disposed towards the creatures he is compelled to experiment upon. All reasonable people who understand the terrible sufferings diseases entail in man and beast, will acquiesce in the demand for liberty to seek out the cause of their painful disorders, and abolish it by every possible means.

We advise our readers to peruse Mr. Salt's little book, as it will inform them of some things they may not know or remember, and they cannot fail to applaud the generous sentiment that dictated its production. It is neatly and tastefully got up, and contains a bibliography of the subject which, incomplete as it is, will be found useful for those who desire to learn more of it.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

(Continued from Page 385.)

Mr. WOLSTENHOLME having thanked Professor Walley for his paper, remarked that like Mr. Greaves he had made no special study of the subject, but it was impossible to follow the duties of one's profession without being frequently brought into contact with it, and being impressed with the serious danger there must be to our own species from the consumption of milk, in which the mammary gland itself is affected with tuberculosis, or in milk drawn from an animal rapidly approaching dissolution from the same disease, and also from the consumption of flesh of animals in the same condition. Not only is there danger in eating the flesh of the ox tribe, but poultry are often largely affected. In one case which I investigated, the Spring chickens in an extensive district were dying in great numbers, in very many of which death was anticipated by the knife and they were dressed for the market. In those which I examined I found extensive acute tuberculosis affecting nearly every organ in the body and also several joints, particularly the tarsus. The question of the channel by means of which the infection of tuberculosis reaches an animal is also an important one, the elucidation of which is much more likely to be arrived at by the combined thought and investigation of the two branches of the medical profession, viz., the human and the veterinary. In the bovine species the infection frequently obtains access by means of the respiratory

organs, whilst judging from the cases of equine tuberculosis now upon record, the alimentary track appears to have afforded the means of entry.

Dr. COWAN, of Wigan, said that he came as a learner, knowing little of animal tuberculosis, and he was very pleased to say that from the paper and the succeeding speakers he had gathered much valuable information on the subject. As to the actual part played in the production of disease and death by eating the flesh of, and drinking the milk from, tuberculosed animals he was uncertain, but he thought that overcrowding, feeding on poor and unnutritious food, and the general bad sanitary condition of the poor in the large towns had a very great deal to do with the production of tuberculosis. The bacillus producing the disease may be likened to a seed, for the development of which a suitable soil is necessary; that suitable soil was provided in the conditions he had just indicated, and he could well understand how infected milk and infected flesh under such conditions should produce widespread disease.

Mr. S. LOCKE said: I do not know that I can add anything more to what has been said on the subject, but at the same time I may say that I have been very much interested, and, indeed, learned a good deal by listening to the paper given by Professor Walley. Professor Walley has gone exhaustively into the history of tuberculosis, and, to my mind, the principal thing is the diagnosing and prevention of this disease. We all know full well that in the early stages of the disease it is difficult indeed to diagnose. At the same time I think it is quite within our province that we should discuss those matters, and also endeavour to bring what interest we have to bear to get the Government to take active measures for the suppression of it. The active measures of the Pleuro-Pneumonia Order have operated with very good results. We veterinary surgeons ought to do what we can to prevent the disease. There is no doubt we ought to try and impress upon the local authorities the advisability of having properly-trained veterinary surgeons as inspectors of dairies and byres. Is it not a great shame that in a town like Manchester there should be no veterinary inspector—not a single veterinary surgeon attached to the department of Public Health? I may add that on the occasion of the appointment of the present Medical Officer of Health in this city, this Association brought the question of the advisability of having a veterinary surgeon attached to that department as a means for the better protection of the inhabitants from the danger incident to the consumption of diseased and infected meat and milk.

Dr. WILD said: I must say our president has taken me rather by surprise. I did not intend to say anything at all. However, I shall not detain you long. I should certainly like to thank Professor Walley for his most interesting and exhaustive paper. I came here to-night as a learner, and Professor Walley has taught me more about tuberculosis in animals than I have known before. I am afraid I am not quite prepared to discuss at this moment all the various questions the Professor has raised, but I should just like to make one or two remarks. First of all, the enormous spread of bovine tuberculosis in relation to human tuberculosis. I think opinion is greatly gaining ground that the great part of our human tuberculosis is caused by direct infection through domestic animals. Undoubtedly, as I think Professor Walley and the President have put it, milk is a dangerous medium for infection, owing to the fact that this fluid forms a suitable medium for the cultivation of micro-organisms; so that a small quantity of infected milk may easily contaminate a large quantity with which it is mixed. Whether or not we accept the tubercle bacillus as the essential cause of tuberculosis, it is undoubtedly a most important factor in its etiology. Another point is this. I do not think Professor Walley laid stress on tuberculosis as conveyed from man to domestic animals. I think Professor Walley said he could not explain why tuberculosis should break out in a herd of cattle in the Australian bush. This might be explained by the

fact that many persons suffering from phthisis (consumption), may have gone out there for health, and, living amongst the cattle, have so caused tuberculosis in the cattle. With regard to legislation, I should consider myself that any system of slaughtering the animals affected, and compensation which is adopted in dealing with those cases in which the disease was well marked, would, at any rate, very remarkably diminish the source of infection, and would improve the health of not only cattle, but also of the human inhabitants. One objection to legislation is the difficulty of diagnosing the disease in cattle. Respecting the question of tuberculosis in horses which Professor Walley has mentioned, I was very pleased to hear. I remember some time ago reading that horse tuberculosis was an exceedingly rare disease; in fact, I believe that the rareness of tuberculosis in man has been put forward by a certain continental society eating horse flesh in preference to cow's flesh. As regards tuberculine, I might mention a case in which an undoubted tubercular lesion, as shown by microscopical examination, underwent no change after the injection of Koch's tuberculine. Therefore, I regard tuberculine as not a reliable agent for the diagnosing of tuberculosis. Professor Walley mentioned that the numerous experiments by the introduction of meat juice, or portions of meat, into animals were inconclusive, and that from what I have seen of some experiments on this subject, carried out under the strictest antiseptic precautions, would most support what he had said as to the inconclusive results. I think Mr. Hopkin raised the question as to whether anything was known as to the effect of want of ventilation, and of atmospheric conditions, on the production of phthisis in the human subject. I might refer him to Dr. Ransome's Milroy Lectures for 1890. In these lectures is given the results of investigations he had made as to the surroundings of a large number of phthisical persons who were patients at the Manchester Hospital for Consumption. Mr. Taylor also struck the keynote of the discussion regarding the pathology of tuberculosis in asking why we did not all get phthisis. We are apt to look upon the etiology of diseases like tuberculosis as a simple problem, and forget that complex disease is resultant of a large number of factors. Of these factors the bacilli may be one, but we must not overlook what is in reality the more important element in the causation of the disease—that is the peculiarity, or whatever it may be, of the surroundings which allow these micro-organisms to produce its ravages. We are too apt to underestimate the influence of those causes which are in continual operation, and to forget that it is the existence of these permanent conditions that alone make possible the specific action of such an irritant as a bacillus.

Professor WALLEY having briefly replied, the meeting terminated in according him a hearty vote of thanks.

JNO. B. WOLSTENHOLME, *Hon. Sec.*
Quay Street, Manchester.

NATIONAL VETERINARY ASSOCIATION.

(Continued from Page 294.)

How can we avoid overcrowding? You know what the authorities of Red Lion Square are attempting to do—to diminish the output. That is the quickest way of preventing overcrowding. They do not say they will prevent overcrowding in that way, but that is the way in which they intend to operate. By diminishing the number of graduates you dissipate the effects of overcrowding. That is where you should try. I would apply the same argument here as in a former case. We should not interfere with overcrowding. This is a free country, and every man has a right to practise his profession when once he is called upon to do so; and if he should find the country too crowded,

if there are too many members in the profession in any district for him, he must simply set his back to the work. We have nothing to do with overcrowding, and least of all has the representative body that is sent to Red Lion Square. They may think that it is the wish of the profession to diminish the number of men sent into it every year, but I should be the last to think that the members of this profession are actuated by any such thought as to wish to interfere with the freedom of a professional brother earning his livelihood. If a man feels that he has—it is too late at this time to speak of a Divine call—if a man feels that he has a special aptitude for the practise of the veterinary art, nobody, not even that august body in Red Lion Square, has a right to say he shall not enter the profession.

"What are the prospects?" This is simply a repetition of the hygienic statement. Then we come to the question, "Is not the veterinarian specially fitted for the management of animals in health as well as for treatment in disease?" To the first part of the question, I say the prospects are not very bright; to the second part I answer, Yes. The veterinary surgeon is peculiarly well fitted for the discharge of his calling, but the other allied branches are not idle. That is a fact that we should never lose sight of. We improve our education—our elementary and our professional education—we raise the standard of examinations; but are not the other branches doing the same thing? Is not the agriculturist of to-day a more intelligent man than he was ten years ago? Are these not sanitarians now? Some years ago there were no such men. Even herdsmen and farm attendants are receiving lectures on veterinary science, the principles of chemistry, and the principles of agriculture. All these things must tend to improve the knowledge of the agriculturist. Then take the other branches. Take, for instance, the effect of the operation of the Public Health Act. That of itself, no doubt, checks disease to a certain extent. Even in the matter of the construction of buildings, which is a hygienic question, it is sometimes said that veterinarians should be called in when a new range of stabling is to be put up. What does the contractor say? The architect is well versed in sanitation, well versed in cubic space and ventilation, and all these things. The veterinarian, while putting his own house in order, finds that the architect and the engineer have been also as anxious as he is; so that the veterinarian, even though he does advance his position educationally, will find to-morrow as much opposition as he had before, but of a different kind—the opposition of trained and educated men. Before, he used to meet with the opposition of ignorance—ignorance that Mr. Hunting calls stupendous. In future the veterinarian will meet with ignorance if you like, but rather I should say with intelligence, which will be educated and trained and far more difficult to cope with.

Then the next question is, "What further extended employment will the proposed educational advance fit us for?" What the proposed educational advance may be Mr. Hunting does not inform us. I am not prepared to discuss the question, because I do not know what Mr. Hunting refers to. It may be an extension of the curriculum; it may be a higher matriculation examination; it may be anything; I cannot discuss without facts.

Taking a general view of the future, I believe that the battle of life can only be won by paying attention to details. It is a matter of very little consequence whether you characterise them by the special name of hygiene or not. There is little or no use declaiming about generalities if you forget about details. In future, if we have an extended curriculum and an improved education, there is no doubt that we shall get a superior class of men—superior in a certain sense. They will have possibly a higher intelligence, but they will probably have less natural aptitude for the practice of their profession. They will have more schooling and less individuality; their ideas will be more generalised, but less concentrated on the work of life. I believe we shall have more machine-made

men, machine-made veterinarians—partly made in Germany, it may be partly made in France, but we shall not have those men who entered the profession years ago, who had a natural aptitude, a natural ability, a love for their profession which is not now nearly so strong as it used to be. Our mission is acknowledged, so our essayist says, and what we should do is to proclaim it. We want enthusiasm, we want more courage, we want confidence and more study. Just think of the enthusiasm of a profession which numbers over three thousand. Look at the small number of members here to-day. It is not because the membership roll is large; I believe the membership roll is well represented; at the same time, remembering that we are a profession numbering close upon three thousand, it is a reflection upon our enthusiasm that more veterinarians are not assembled here to-day. We want study, not the study of books so much as an earnest study of cases; we want veterinarians to pay more attention to cases; we want observers, men of large natural and trained experience, or, to put it in another form, we want more Dicks, with Percivall's power of pen; we want more George Flemings, to give us of the best of other countries; we want more McFadyeans, to sift the pathological chaff; we want more honest John Steeles, to epitomise the whole; we want men more skilled in investigation; we want men of aptitude, men of honesty of purpose, men of zeal, character, men of vigour and of will; we want men who will bring education, experience, and discrimination to bear upon the everyday work of life. We cannot foresee what may happen in the future, not even the near future; but with that constant change or spirit of change in the Council, a watching profession in the provinces, there is no doubt that in the next few years this profession will experience many changes. The Charter that is about to be obtained will not be the last Charter of this profession. The Fellowship degree will not be the highest degree; and the examinations, conducted as they are at present—satisfactorily enough no doubt—will in the future be very much improved. But, taking all things into consideration, we cannot forget that the veterinarian of to-day experiences more difficulty in gaining a livelihood than he did some years ago. He cannot obtain the same fees for his professional service; he finds competition keener; he finds stock healthier; he finds clients more intelligent; attendants more skilful. These are things not so much the result of stepping backwards as of stepping forward, and although it may go against the grain, I believe that we are likely to encounter a period of greater pressure than heretofore. I look upon it as a sign of improvement; as a sign of development, that we are becoming a more useful profession to the public. However, come what may, let us hope, in the words of Thackeray—

> "Come wealth, or want, come good or ill,
> Let young and old accept their part
> And bow before the awful will,
> And bear it with an honest heart.
> Who misses or who wins the prize
> Go, lose or conquer as you can;
> But if you fall or if you rise,
> Be each, pray God, a gentleman."

Prof. WALLEY: Mr. President and Gentlemen, in a discussion of this kind one, I think, has to tread very carefully lest one puts one's foot a little heavily upon somebody's corns. However, the gentleman who opened this discussion does not seem to have troubled himself very much about anybody's corns, and I would rather that someone possessing a little more sprightliness than myself had undertaken to continue the discussion this afternoon. Honestly I may say that when I saw this paper, or when I noticed the subject, I thought there was very little that could be discussed; but from the lengthy remarks made by our friend Professor Macqueen, I began to alter my mind and to think that there was a great deal to be discussed. I do not, however,

feel myself in a position to discuss the subject in the same tone as Professor Macqueen did. It is all very well to make fun, as it seems to me was the prevailing intention, if I may so say, of the essayist, and not only of the essayist but of the profession itself to some extent, and the Councils of the profession to as till larger extent. In the first place, fault was found, as it seemed to me, with the essayist for something like repetition or tautology in the arrangement of subjects, and then the speaker went on exactly in the same lines himself. Professor Macqueen in the first place made fun of the suggestions of the essayist about treating birds. Now, does it matter a rap whether you get your dollars by treating birds or monkeys, or any other animals? Surely birds, like all other animals, require, and should get when they require, the skill of the veterinary surgeon just as much as the most noble animal that lives. I confess that I have sometimes turned an honest penny by treating birds. It seems to me that poking fun at the treatment of birds was very much the same kind of thing as people poking fun at the Grand Old Man, when he recommended the Scottish farmer to grow strawberries. I am not a friend of the Grand Old Man, but I will give the devil his due; and I will say that growing strawberries has proved a source of remuneration to more than one Scottish farmer. If Mr. Hunting recommends us to turn our attention to birds, by all means let us do so. Let us turn our attention to earth-worms if necessary, if we can do something to relieve suffering and at the same time do some good to ourselves. With regard to the cultivation of bacteria, Professor Macqueen poked fun at us in the same style. Well, why may we not cultivate bacteria? I question if ever we shall be called upon to treat them. Then Professor Macqueen went on to speak about meat inspectors, referring to offices that are opened up to the veterinary surgeons at the present day. I thought our friend Mr. Hunting did deserve a little rap there, but I do not think Professor Macqueen knows why. When at the London Conference the other day, in reference to the new arrangement for the examinations, the question of meat inspection and its place in the synopsis came up. He seemed to me to be rather throwing cold water upon meat inspection and meat inspectors, by asking the question how much per annum the men at present engaged in Edinburgh got as meat inspectors? So far I think he deserved all he got. But this I think is one of the lines upon which we must go in future, for the purpose of opening up another means by which veterinary surgeons can obtain an honest livelihood. Then I say we must do this on another and a higher ground, and that is, in order to take our proper position in the face of the world as meat inspectors, to take that which belongs to us as a right. If, for example, we only get the appointment of four, or six, or eight to be meat inspectors in the year, we are opening the way for some of our graduates . hereafter, I have no doubt we shall have not only four, or six, or eight men appointed in a year throughout the country, but probably twenty-four, or twenty-six, or twenty-eight. It is a matter that is bound to grow. Let me give you an example of the way in which we are cheated out of our rights. Some little time ago the authorities, whoever they may be, desired that the staff officers should get instruction in meat inspection, and who do you think they sent for? Not a veterinary surgeon, but a doctor! and he had to finish his instruction by calling in the aid of his veterinary colleague to teach the men in the first place the simple anatomy of the bones of animals and the difference between a horse and a cow. That is a thing we should not allow. We must claim our birthright, for it is the birthright of the profession. It is their honest due that they should become meat inspectors and nobody else; that is, as practical men. Of course we have a medical officer of health to assist us. I do not say a word about that. That is the manner in which we may open up a way for our graduates.

In speaking of the slaughter of animals as carried out in the 17th century,

Professor Macqueen quite deservedly spoke of a doctor in those days having been the means of stamping out pleuro-pneumonia by slaughter; but coming a little later we remember the day when the doctors did not stamp out cattle plague by slaughter. On the contrary, they tried to introduce vaccination; so that what one doctor tried to do in the 17th century others tried not to do in the 19th. I do not know, however, that that has much to do with the subject; but it is well to see our own position in reference to the other professions. Professor Macqueen also seemed to go on a rather curious tack in regard to the veterinary surgeons or the profession generally in connection with truth, and in connection with doing to others as they do to you. I will not follow him in that matter. I will simply quote the advice given, not by a veterinary surgeon, but by a man intimately acquainted with veterinary surgeons—the late John Scott—when his son was leaving home: "Fear thy God; speak evil of none; stick to the truth, and don't be done." Is there anything in that that we should not do? I do not see why we should do harm to another because he does harm to us, and certainly we should speak evil of none, and do evil to none.

Professor Macqueen enlarged a good deal upon the difficulties experienced by veterinary surgeons of the present day in getting a living. I will ask, gentlemen, if there is any profession, let alone any trade, in which there is not a difficulty in that direction. There was an old saying, "What are we to do with our daughters?" And the question is now, What are we to do with our sons? What must they do? As Professor Macqueen said later on, they must take their chance; they must pay their money and suffer, or the contrary, as things turn out. I believe our profession occupies a very different position from what it did when I joined it. Coming to a meeting like this I look around and I cannot help thinking and saying to myself that we are as good looking a lot as most people; we look as prosperous, most of us, as others. If we are not making money we are happy, and I do not know that there is much to grumble about after all. Then again, I think there are more men occupying positions of importance, and not only of importance but of profit, than there were some twenty or thirty years ago; and I will go further and say that I think if we try to get a proof of the way in which we are advancing in the social scale, we may look at a great many men in the profession and see how they are stepping up. By what means? They are improving their positions by marrying—I won't say money, but girls with money—and I say, let them go on and do that as much as they can. If you cannot get position in one way get it in another. Then if you talk about over-stocking, take the case of parsons, quoted by Professor Macqueen. Why, only the other day I was in a town in England where a poor curate had to go to the bank every morning to see if anything had come for him, for he was almost starving. If we are starving in the veterinary profession they are starving a vast deal more in the higher professions. Then ask the lawyers. I know they are not starved. They say that the clients of lawyers are fools, but according to very high authority there are plenty of fools about now-a-days, and I suppose they will continue to be to the end of time. Professor Macqueen went on also to speak of the greater intelligence of attendants upon animals in Scotland as compared with those in other countries, and he put England in the lowest scale. I do not object to that, but I may say that yesterday I was at a place in Scotland a few miles from Stirling, to see an animal down with paralysis, and what do you think I saw? A bandage round her tail, where she had been cut for tail-slip by one of the Scottish attendants. That did not look like intelligence spreading very far amongst them. Then look at the number of illiterate voters in Ireland. That does not look as if intelligence was spreading much in that direction. Professor Macqueen also said that we can do nothing in reference to the prevention of strangles, and

that preventive measures enforced or advised with regard to black quarter were not successful. I confess I was a little astonished. We cannot do much, it is true, with reference to the prevention of strangles, but we can do something, and on the whole that something amounts to a tolerably large effort, if we choose to put it into force. As for want of success in connection with black quarter, I have to go back a good many years—I forget how many, if I am to acknowledge that we have any want of success in that matter—absolute want of success. On the contrary. I have been the means of preventing a good deal of it in my time, and I think if I were in practice I should still be the means of doing so now.

Professor Macqueen also said that it was not our place to assist in making openings for men in our profession. I do not think that is quite a patriotic way of looking at things. If our forefathers had not thought a little for us we should not be where we are to-day, and if we do not try to make openings for those who are to follow us, I do not think we shall be doing our duty to posterity. I should like to refer to one gentleman—I should be glad if he were here to explain the matter himself with reference to the closing of openings—I mean Mr. Hallen, the chief of the Veterinary department of India. Some years ago, as some of you know, there were a number of stud appointments in India, and if I am correctly informed—there are some here who can put me right if I am wrong—Mr. Hallen was largely the means of closing those appointments. But what has he done recently? So far as I know Mr. Hallen is responsible for the opening up of a much wider department, that is the Civil Veterinary department of India, which in course of time must provide openings for Veterinary graduates. It is our place, as I have said, to make openings for meat inspection. We ought in fact to claim our rights in all things belonging to the exercise of our profession.

In regard to the diminution in the output, I do not know where Professor Macqueen got hold of that. I want to make one remark upon that point. Professor Macqueen seemed to think that the tendency or scope of the measures that have been initiated by the Royal College of Veterinary Surgeons was to diminish the output. I think he seemed to indicate that it was the desire of the members of the Council of the Royal College—that remarkable and august body, as he called it—to diminish the output. Well, I think I may safely claim priority with reference to this movement, and I can honestly say that I had no more idea in my own mind when I first proposed the four years scheme and increased education, of diminishing the output than I had of going to Hong Kong or any other place. My object was to improve the profession; and I maintain that the steps taken by the College are steps that are likely to improve it and put it on a better basis in the eyes of the world. If we do not improve ourselves we cannot expect that the outside word is going to respect us. I maintain that veterinary surgeons, men of good education, and good character, keep their place in the world as well as the members of any other profession. But you want to go on improving, not only those at present in the profession, but those who have to come into it.

Another remark that Professor Macqueen made was with reference to sanitation. He seemed to think that architects had as good a knowledge in the present day of sanitation, as far as buildings are concerned for housing animals, as we have. I can only say from my own experience that architects know mighty little about it, and that if you have a stable of horses that you are attending, and there is a new stable arrangement, the chances are if you are not consulted that you have to suggest a dozen alterations before it comes to perfection. That is my experience, and that is the direction in which we ought to cultivate ourselves, and to know as much as possible about hygienic matters, so that we can advise upon a subject when we are

asked about it. There is another subject that has been discussed, but I do not know that I can say anything of importance in connection with it. I will only say that I deem it the duty of the whole body of the profession, and of every individual member of the profession, to go improving it in any way that he himself thinks right and likely to bring about the ends for which he works.

The PRESIDENT: I should like to say, without the slightest desire to curtail the speeches, that we are not here for the purpose of discussing the remarks made by different speakers upon the paper, but for the purpose of discussing Mr. Hunting's paper itself. I shall therefore feel obliged if, in future, the speakers do not take any particular notice of what Professor Macqueen has said, or Professor Walley. The object is to discuss the paper and not the remarks made by the speakers upon it.

Mr. CAMERON: There are a great many present who are far more able to speak upon this subject than I am; but I may be permitted to say that I have my own ideas in regard to Mr. Hunting's paper. I agree in many respects with what he has said and I think that he has gone very well into the subject. I am certainly led to the same conclusions as he has come to in various aspects of the subject. I do not know that the questions are very well arranged here, but I will do my best to refer to them. The first question is, "Is the present position of the profession satisfactory, and can we maintain or improve it?" I think he has come to a wrong conclusion in saying that our position is satisfactory. The question naturally arises, How is it to be improved? Well, my idea is that it is not by looking to any particular organisation, not even to any of our National Veterinary Departments. I do not think that we get much encouragement there. Then when we look at the cases in the Law Courts we find that the heads of our profession are at sixes and sevens entirely; and coming to the rank and file we do not find that they are exactly candid. Then look at the comparatively meagre attendance at the meetings of this Association. I cannot help thinking that that is in many cases due to jealousy on the part of brother practitioners. I believe there are some men who would come to the meetings but for the fear of neighbours intruding upon them in their business. I think our moral tone all round is not what it ought to be, and there is every reason why we should try to amend ourselves in that respect. There are various other aspects in which the subject could be looked at. The pecuniary aspect has been touched upon. It has been said that our fees are less and that our visits are not so numerous. I quite agree that that is the case in many instances and in many districts, more especially, perhaps, in agricultural districts; but it is not so much so in the towns. But in agricultural districts there is not so much money invested in the soil as there was, and the result is that the population has diminished, and there is less money to pay veterinary surgeons and everybody else. In this matter I would like the Glasgow people to lend us some assistance. They are very able in business matters, and in figures, and also in words. There is one reform I think, which would greatly assist us as well as various other portions of the community, that is if the landlords' special claims, and the money-lenders' special claims, were abolished, and we had commercial equality. The landlord and the agent would then make a much more judicious selection of tenants, and we should have a larger amount of capital invested, and everybody would benefit from it.

With regard to the openings existing for veterinary surgeons, I quite agree with what Mr. Hunting has said at page 5:—"Our profession is much too modest; it forgets that other callings do not understand ours, and it omits the duty of impressing its importance upon those who fail to recognise it." Take, for instance, the appointment of veterinary inspectors. Take Berwickshire and Aberdeenshire as illustrations. There you find that every veterinary

surgeon has been appointed veterinary inspector in his own district, and the result has been that very few cases have escaped observation. For many years there has been only one veterinary inspector in the whole of Northumberland. I do not know much about Cumberland. With regard to the inspection of dairies there has been an order, but I believe nothing has been done yet. Take, for instance, the whole county of Northumberland, and take Berwickshire, where there has never been a single item of veterinary inspection since the order was issued. It is simply under the police and the sanitary inspectors. The time when the matter was taken out of the hands of the local authorities and put into the hands of the sanitary authorities I was dismissed, and it came into the hands of the sanitary inspector. I have no objection to its being in the hands of the sanitary inspector, so far as I am concerned; but I maintain that the inspection of a cow ought to be retained under veterinary supervision, as I believe, was done at Selkirk. It is our duty to look into points of that kind. No doubt we have been making some progress lately, but I do not think we are making half the progress we should do. When the subject was discussed in London many years ago, I think I suggested that we should take the public into our confidence, because the public has no idea of the actual state of things. We were to make public *post-mortems*. It might be arranged to bring a cow from a distance, and let the public see what the animal was subject to for want of veterinary supervision. I think we ought to begin with registered dairy cows.

Mr. HOPKIN: We are apt on this subject to regard it from our own special stand-point. I hardly know where to place Mr. Hunting on this occasion — whether he appears in this paper in his literary or editorial capacity, as a member of the Council, or as a private practitioner. I should like to look at the subject from a plain practitioner's point of view. It is twenty-two or three years since Professor Syme gave myself and other students who then obtained diplomas, a few words of good advice and friendly counsel. We were turned into the world then as members of this profession when there were a little over a thousand members. We have to-day three thousand. In those days it was a common occurrence—a daily occurrence, I may say—to have to visit cases of pleuro-pneumonia, foot-and-mouth disease, and glanders. There were constant entries in the day-book of visits to these cases. But I suppose it is a rare occurrence now for a veterinary surgeon to make a journey or take a fee in connection with these diseases. Disease is not as prevalent with us as it was. Preventive medicine, that has been talked so much about, better dieting, and better surroundings, have improved the health of the horses of the kingdom, and we have certainly not so much disease as we had. Then other changes have taken place. I think it is generally admitted in the commercial world that very much more is required now for money than at the time I have been alluding to. Our fees are not so good, our visits are not so numerous, and competition is certainly much keener, irrespective of the increase in the numbers of the profession. Competition has become so keen in our district that men appear to be quite satisfied with an income that a clerk, or I might almost say a good artisan, could command. We have many men practising in the smaller towns of Lancashire who, I am sure, do not make £200 a year by their profession. Let me briefly mention one of the untoward circumstances in connection with this. We have the Society for the Prevention of Cruelty to Animals—a society that we have, as a profession, helped considerably, and are ready and willing to uphold in all legitimate cases; but they appear to find no difficulty in obtaining a certain class of veterinary evidence to support them in every case. It has come to such a pass that recently a veterinary surgeon has been fined £3 for advising a horse to be exercised that was recovering from lymphanitis. The conviction was obtained before the magistrates, and the fine was imposed. The

veterinary surgeons in connection with the Lancashire Society joined together, and raised money to guarantee an appeal. It was accordingly carried to the Court of Appeal, and we won the day. But veterinary surgeons were ready to come forward on the other side, and several got into the witness-box in behalf of the Society. Surely such men must be hard pressed, and must have a very strange idea of what is fitting if that is their mode of procedure. I believe the opinion was honestly given that the horse was better exercised. If we are to be subject to that sort of thing, it is evident that our profession is certainly overcrowded. With regard to tuberculosis there is a field for us there. I do not for a moment deprecate all that has been done to stamp out this disease; I do not deprecate anything that has been done to minimise the disease; but I think if we direct our attention to tuberculosis we shall find a field for our exertions. We have in our district a great deal that is insanitary, in spite of all that has been done for the dairy. I should think that in almost every dairy with twenty cows there are two or three cases of tuberculosis; but the milk and meat are passed as food for human beings, and the mischief that is worked is incalculable. I hope that, as a profession, we shall give some attention to this scourge. We now come to education. The School Board children of our district are receiving an education quite equal to that of many members of the veterinary profession, and it will not do for us to stand still in that respect. The Professor said that the doctors had a larger knowledge of literature, and of many of the higher sciences, than we have. If we are to maintain our social position, and desire to qualify ourselves for other duties, we must not relax our efforts in demanding a higher state of educational fitness for the members of our profession. I hope that when any change is made in the examination a written examination will be included. I remember that the students in my days were many of them very capable, but they suffered from nervousness, and they made perhaps not so good an examination before the examiners because of this fact; but i they had had an opportunity of expressing the knowledge they had in writing they would have made a much better appearance. Another case came before my notice recently. I do not know whether that was an important factor in it, but certainly I feel sure that one or two of the students who, I think, ought not to have been rejected, would have passed if there had been a written examination. I remember that we had only two sessions at College; I may perhaps be egotistical, but I think we turned out very good students in those two years. The fact is that when we only had two sessions at College we worked hard. Nowadays, I occasionally hear students talking about football time or cricket time. Those things were foreign to us twenty years ago. I do not think it is any use extending the term if a large portion of it, or any portion of it, is to be spent in idleness. Perhaps Professor Macqueen had some of these things in his mind when he referred to enthusiasts. I believe that the students of twenty years ago were real enthusiasts in their profession. If we can only get the same influence now, and get the man better educated, I look forward to a better state of things in our profession.

Mr. SIMCOCKS: Whatever the result of the discussion may be, I think that there is one ground on which the meeting has reason to congratulate itself; that is, that my friend Mr. Hunting has been encountered by so able an antagonist as Professor Macqueen. It strikes me that notwithstanding the restriction which the President has put upon the mode of discussion, we must consider Professor Macqueen's remarks in connection with Mr. Hunting's paper. It struck me also, in listening to those remarks, that the old proverb would apply to some of them: "It is a dirty bird that fouls its own nest." But I am glad that Professor Macqueen has acted the part of a candid friend. Although high-faluting, self-glorification, and tall talk about our own profession. may be all very well in its way, I think it is not a bad thing occasionally to be

told some of our faults and failings, and Professor Macqueen has to some extent done that. Professor Walley has also given us some good advice, and if only the profession will adopt many of the hints from both these gentlemen if we are none the better for them we certainly shall not be the worse. There is one thing which the Professor said to which I, as one of the few Irishmen present, must take exception, He has placed Scotland before Ireland. Now, I know nothing or very little about Scotland, and I am prepared to admit that it is before Ireland; and I am also prepared to say that if the cattle attendants in England are more prejudiced and ignorant than the cattle attendants in Ireland, God help them! It struck me all through Professor Macqueen's remarks, that he attempted to prove that our success as veterinary surgeons is due, not only to our knowledge of the diseases of animals, but to the ignorance of the parties who look after the animals. In other words, he was attempting to prove that we must be, to some extent, gulling the public. Now, I not do believe that it is judicious to wash our dirty linen in public in that way. To some extent I agree with Professor Macqueen that we must not only treat the animals, but treat the owner. Judging from my own experience in the veterinary profession in my country, it is not always the man who is best qualified in his profession who is the most successful. Very frequently the most successful man is the man who is possessed of tact, business capacity, and energy, and if he knows something about his profession, so much the better. Professor Walley has spoken of the necessity for the present generation finding openings for posterity. A countryman of mine, Sir Boyle Roche, once said: "We are told that we should do something for posterity, but I should like to know what has posterity done for us." That is my case; I entirely agree with Sir Boyle Roche. If we take care of ourselves we have quite enough to do. Mr. Hopkin made some remarks with regard to the great importance of the veterinary profession, which strongly went against one of the strongest points in Mr. Hunting's paper. Mr. Hunting dilated largely on the future of the experts in hygiene which the profession is going to turn out, also on some of the successes already gained, and the large fees obtained, in connection with the adoption of preventive medicine. Mr. Hopkin has told us that some years ago certain diseases existed largely in his district; and of course, where disease exists, the veterinary surgeon makes more money than where it does not. Mr. Hopkin says that disease of a certain class has ceased through the operation of Contagious Diseases (Animals) Acts. This is very creditable for our profession, and it seems to me to prove strongly that the adoptionof preventive medicine tends to prevent disease occurring. I agree with one of the remarks just made, namely, that the two-sessions man of twenty years ago was as good as the man of the present day. I do not know why that is so, but I think few veterinary surgeons will disagree with that. Of course, men nowadays have much more to learn—many more subjects to take up than they had then; but the question is whether those subjects are of much practical use. I very much doubt whether some of them are. I do not believe that the future of the veterinary profession is so bad as some have believed. I think that financially it has seen its best days, but socially we may attain a higher scale. As far as I know, very few veterinary surgeons have attained any social position because they are veterinary surgeons, but some have attained social position in spite of it. When they are better educated it will be different. When they not only act as professional men—as cow and horse doctors—but as scientific men, their social position will be improved, if not their financial. I regret to have detained you so long, but as one of the few representatives of my country present, I could not allow the opportunity to pass without making these few remarks.

Mr. SIMPSON: I have no intention of detaining you at any length, as

believe that the answer to these questions which Mr. Hunting has asked is a very simple one, and I propose to answer them in a very few words. The subject of Mr. Hunting's paper is "The Veterinarian, his position and prospects." A good deal of sentiment has been imported into the writing of this paper, and into the discussion of it; but I am inclined to take a practical view of the subject, and to say that the position of the veterinary surgeon depends entirely upon himself, and that his prospects depend entirely upon himself. As a body I maintain that we owe nothing to the improved position of the veterinary surgeon, and until individual members of the profession feel that the profession is dependent upon him, as an individual, for its elevation, we shall do nothing to advance it. My answer then simply is—that so long as we have three or four schools that are prepared to take students, the students will go to those which impart the best knowledge; and after the student has been educated, and passed into the profession, he will have to take his chance. If he is not a man worthy of the support of the public, the public will have nothing to do with him. The questions then asked by Mr. Hunting are answered in a few words. The position of the veterinary surgeon depends entirely upon himself, and his prospects depend entirely upon himself.

Prof. MACQUEEN: I would ask permission to notice a few remarks of Professor Walley's, because I think you will agree with me that he discussed my remarks rather than Mr. Hunting's paper, and as I wish to prevent any misconception I would crave your indulgence for a few seconds. With reference to my observations concerning bacteria and birds. I hope Professor Walley did not imagine that I was simply poking fun at the exercise of professional intelligence with regard to bacteria and birds. I was not poking fun, and I think I ought to be the best judge of my own views. As to meat inspectors, Professor Walley may tell us of the appointment of two or three meat inspectors annually. It appears that two have been appointed recently at £120 a year. But if there are twenty appointed every year, what is that compared with the large increase in the number of new graduates? I maintain that meat inspectors are very useful people, and the appointments may serve as openings for a few, but we need not hope to legislate for meat inspectors only. Every veterinary surgeon, as taught at the present time, should be enabled to inspect meat. All that is required is a little more experience in that particular department. I am afraid, however, if the remuneration of the meat inspector is not improved there will be no great number of candidates for the appointment. Professor Walley missed the purport of my remarks with regard to the difficulty of practice. I did not say there was no difficulty in getting a livelihood; I said the difficulty is greater in the present day than it was a few years ago. Professor Walley said—that when he looked round about him he thought we all looked healthy, and well, and prosperous. That may be so; but how many might have been here to-day, if we had been in a more prosperous condition? Has prosperity anything to do with the members present to-day? I am afraid it has a great deal to do with it. Competition affects prosperity, and I believe it is owing to competition, owing to the peculiar condition and prospects of the profession, that these meetings are not better attended than they are. Then I distinctly qualified my remarks by saying that I did not wish to refer to any special department—Government offices, the Army Veterinary Department, or anything of that kind; but I said I would refer to the rank and file of the profession. Professor Walley selects a few cases. He does not take his illustrations from the rank and file of the profession. He says that other professions are equally poor. That is a poor argument: two blacks do not make one white. Why make our profession poorer because others are poor? With regard to the intelligence of men in the three kingdoms—that appear

to be a sore point; but here again I think I have been misunderstood. I said that the reason why there was greater difficulty experienced nowadays in Scotland was because of the greater intelligence of the attendants on the animals, and I said that that difficulty was less in Ireland, and still less in England. I accounted for that difference in the three countries in this way—that elementary school education was instituted in Scotland in 1698, in Ireland in 1831, or about that period, and in England not until 1870. We are only beginning in England to feel the effects of cheap elementary education. I still maintain that this is one reason for the greater difficulty experienced in Scotland as compared with Ireland and England. No doubt there is more patent medicine sold in England, in proportion to the number of animals, than anywhere else. You cannot sell patent medicines in Scotland, and I believe that is largely due to the intelligence of the attendants on animals. I need not notice what Mr. Simcocks said on this score, because he put it in a peculiar way, saying :—"God help the animals in England if they were attended by more ignorant men than those in Ireland." That of course does not alter the circumstances of the case in the slightest degree. Then as to Professor Walley's remark as to the prevention of black quarter.

Mr. CAMERON : May I say, sir, that I think this is a very irregular discussion. Some time ago you desired that the discussion should be entirely confined to the paper. Professor Macqueen in his opening remarks spoke for nearly an hour, and Professor Walley for half-an-hour, so that there is very little time for any other member of the profession to speak.

The PRESIDENT : I agree with Mr. Cameron that it is a pity that any irregularity should be indulged in.

Prof. MACQUEEN : I will only say one word in reference to black quarter. The method that I referred to was inoculation, and I say that it has not been a success. Professor Walley has spoken of Mr. Hallen and the appointments he has been instrumental in obtaining for members of the profession. I should like to say that Mr. Hallen has been largely engaged in filling openings, and not in making them, and that is a very considerable difference.

Mr. HUNTING : Mr. President and Gentlemen,—the gentleman who opened the discussion found fault with my paper for being too optimistic; he himself went to the other extreme, and I think was too pessimistic. He told us that this was the worst of all professions, and the worst of all worlds. If Professor Walley had not replied to him, and really demolished most of his arguments on the subject, I might have detained you longer, but as it is, I do not think it necessary. I will just pass on to his next remark, which he has just attempted to palliate. I am not surprised at his trying to run back. If you remember, before he had completed his speech—he had swallowed the whole of my paper, and the greatest pessimist in the room had become absolutely an optimist, quoting some lines from Thackeray much more optimistic than anything that I had said. Then, after ridiculing attendance upon birds, and making remarks about old ladies with their cage pets, he now tells you that he does not object to the study of diseases in birds. He says that the pathology of the disease is as interesting to him, whether it is the disease of a bird or of an elephant, and I really believe him. I have do doubt that Professor Macqueen takes a deep interest in his profession, whether as applied to the bird, the elephant, or the horse. Three or four gentlemen have with great success used the word "practical" to-day. God knows what they mean by it. I suppose they thought it would enable them to obtain the ear of the audience, and indeed, it generally did, because applause always followed the use of the word "practical." It does not mean much, but it generally has hanging to it some sort of financial connection. In reference to birds there is a decided financial aspect connected with the view of the question. There

are four or five distinct contagious diseases of birds, and if you bear in mind that it is calculated that every grouse on the Scotch moors costs its owner 25/- to produce it, it will be worth anybody's while to tell him how he can stamp out the grouse disease—which is undoubtedly contagious, and a specific disease which we have not got to the bottom of yet. We have been fooling about parasites, because we found some, but the old disease suggests and follows the lines of the contagious diseases of other animals. It only wants investigating. Then amongst young pheasants, and old barn-door fowls, you may have contagious diseases which destroy, not simply one valued at 3/6, but the whole lot; and surely, a man who can help an owner to provide against the loss of a whole flock of birds, may reasonably expect to be paid for it. Practically, the owner of those birds can afford to pay him, when you can show him that you know how to do it. Somebody has said, that if we are going to treat the diseases of birds, we may as well descend to the diseases of earth-worms. Well, earth-worms are not so uninteresting. You may remember that no less a man than Darwin obtained about one-third of his reputation by his book on earth-worms. There is an immense field for the study of disease and of life in the smallest, as there is in the largest creature. Professor Macqueen told us, and he seemed rather delighted to tell us, that there was nothing new under the sun. I have noticed that a man is always prepared to tell you that there is nothing new under the sun when you may have mentioned that some other man has discovered something new. I cannot help thinking that it was the mention of John Gamgee that suggested to Professor Macqueen to say that there was nothing new under the sun, and to tell us that some centuries ago an Italian pole-axed animals. I do not dispute it. But when he instanced the performance of operations in the abdomen, I may remind him that they also performed operations on the skull, but as they were of a somewhat primitive nature no careful statistics were kept of the fatalities which occurred. I was rather surprised to here him say that there was no advance made in surgery, and not much advance made in medicine. If you take the trouble to read some of the awful prescriptions in ancient medicine, and some of the dreadful performances in the way of operations, I think you will see that there has been a very great advance. To tell us that, because some physician two centuries ago in one individual case anticipated modern medicine or surgery, and that, therefore, there is nothing new under the sun, is really to make a *suggestio falsi*. There is a great deal of difference between the extreme intelligence shown by one man and the awful ignorance exhibited by all the rest around him. At the present we have not so many men of supreme intellect, but we have a great number who, if mediocrities are far above what used to be the average. Our profession in its educational acquirements is like the people of Scotland who have been referred to, and of whom it has been said that every man had a mouthful, but nobody a bellyful. With regard to my first question, "Is the present position of the profession satisfactory, and can we maintain it?" Professor Macqueen says "No, it is not." And why? Because he says it is more difficult to exist now than it was formerly. Quite so; I acknowledge it. The question is a comparative one. It is more difficult to exist in every profession and business, but it does not follow because we find it harder to live that we are not progressing, and that we are not in a satisfactory position. Every other business in the country finds it more difficult to live. That business shows that it is not in a very unsatisfactory position which merely exists in these days. We exist, and exist pretty fairly. I gave some figures on the subject—I will not call them statistics—and I think you may pretty safely say that the average income of veterinary surgeons, including even all the worst of the country, would amount to £200 a year. I say that the average doctor does not earn that amount, and the average parson

certainly does not come anywhere near that. Yet those men are educated, and their education costs a lot of money. They do not enter their profession simply to get £200 a year. Surely there is a certain amount of satisfaction to be derived from the education received. You may call it vanity if you like —the feeling of being a little superior to the retail tradesman. I know I have it, and I should be sorry to be classed with the greengrocer. We are told, too, that men are increasing in our profession, and that diseases are decreasing with intelligence. I cannot help thinking that Professor Macqueen has confused the words "intelligence" and "education," which are two totally different things. The intelligence of the owner and of the attendant is better now than ever it was. Mr. Simcocks, I think, misunderstood Mr. Hopkin. As I understood Mr. Hopkin, he pointed out that, although diseases were not so bad and not so numerous as they were, the veterinary surgeon was as frequently employed as ever. That is my experience. We are called in now to much milder cases than we were; we are called in where nobody was called in before, cases in which the animal formerly died, having been treated by the intelligent owner himself. I did not write this paper, as Professor Macqueen suggested, with the idea of trying to prove a preconceived theory that we were the best of all professions, and that this was the best of all possible worlds. But after seriously thinking the matter out, I came to the conclusion that we we not worse off than other people. I acknowledge that there is in the distance a future which we must provide for or we shall get worse. They way to provide for it is, as I suggested, to increase the usefulness of your man by giving him better education. We have offered that better education and we intend to insist upon that better education. The social position of the veterinary surgeon will be better when we have this education, even if his financial position is not better. It is said that we shall be making book-worms, but that we cannot give these men intelligence. I wish we could. If we could give intelligence it would be one of the first things that "that miserable Council in Red Lion Square" would attempt to give. But we cannot, and therefore we do not attempt the impossible. We can insist upon education, we can insist upon a decent scholastic knowledge, as well as a technical training, and that we do insist upon. It seems to me a weak argument to say that because we cannot give intelligence we must not give education. At any rate a man of mediocre intelligence is a little better man in this world if he is decently educated. I am prepared to allow that the brain is something like the stomach, and that it may be injured by being crammed beyond its proper dimensions; that if you get a man of extremely narrow intelligence and try to cram him full of facts you will make a bigger fool of him than he was before, but our examiners must decide that point: they must be men quite capable of seeing whether a man has digested his facts in addition to knowing the more isolated facts of his profession. With regard to this question I do not believe it is a matter of the Scotch having had compulsory education a century before the English, which enabled them to do without cheap jewellery and patent medicines. I think it is to do with their natural intelligence, and also with their desire to have thirteen pennyworth for every shilling they spend.

With regard to Professor Macqueen's complaint that I did not tell him what preventive medicine was—perhaps I did not. But I have to thank him for telling you all about it. He pointed out to you that there were preventive inoculations about which we knew little and which might have an immense field for their use. He told you about hereditary diseases upon which we could give advice; he told you that there were dietetic diseases and preventible ailments upon which we could give advice, and if you can do all those things there are plenty of positions in which the horse-owning public would be glad to get your assistance. He referred to the managers of studs. Goodness

knows, the present manager of a stud, with very few exceptions, is a dreadful man. He knows absolutely less than the veterinary surgeon, yet if he only knows a few slang names, and is able to walk around a horse in a knowing manner, he is at once accepted as a proper stud manager. I say that with the training given to a junior student of ordinary common sense, and about two years' practice, he ought to be enabled, *cæteris paribus*, to manage horses better than a man who has had 20 years' experience without scientific training, providing always that the brains are equal. I should like to point out that now, when you get 5s. or 10s., or in some cases 20s. or 30s. per horse per annum in contracting for attendance, you ought to have double that when you combine the duties of preventing diseases and the duties of curative medicine.

With regard to hygiene, Professor Macqueen asks, What is hygiene? in much the same manner as Felix asked Paul: "What is truth?" He says it is no new thing. We have taught it for years. Yes, but we have not examined on it. That is the new point: it is not a bit of good your teaching a man if you do not take care that his knowledge is tested; that is our new departure, we are going to test his knowledge. I do not want to speak too slightingly about teaching, especially with the capable teachers on my right. Professor Macqueen pointed out that under the title of "Hygiene" they learned some valuable information, that they learn about the law of diffusion of gases, about the tidal air in the lungs, but we are to see that they know how to leave the windows open when a horse has congestion of the lungs. Then he finished up by saying that education, after all, is not a bad thing, and that a man is better with it than without it. That settles the whole question. He says it is not our work to provide more openings for men. I hold that it is. It is all very well to talk about the horrible law of "the survival of the fittest," which holds good in a forest and in Central Africa, but which really will not do in civilised countries. If we have a charter, and if we bind men down to do this and not to do that, we must feel some responsibility for them as well as authority over them, and I hold that it is necessary for us not only to be fair to them, but to be fair to the profession generally, and to prevent, if we can, overcrowding, with all its attendant evils. We shall not prevent overcrowding unless we anticipate this question, and unless we provide openings for men coming into the profession. There are only two ways of doing it—you must either block the entry or you must enlarge the sphere of action for men when they go out. I speak not only for myself, but for "that miserable body in Red Lion Square." that we have heard of. We do not propose to block the entry, but we propose to do what we can to widen the sphere for the men when they go out of College.

I will only refer very shortly to Professor Walley's allusion to Professor Macqueen's making fun of the thing. My friend Professor Macqueen is like myself—he has a way of saying things which is very often put down to "pretty Fanny's way," but you may take my word for it that what you are pleased to call fun is very often fun in earnest. As far as I am concerned I believe what I say most thoroughly, and I credit Professor Macqueen for believing what he says. If we put things in our own way it is simply because we can put them in that way better than any other. If I possessed the humour of my Irish friend I should adopt his way, or if I had the solidity and steadiness of Professor McCall I should prefer his way. We do our little best in the way we can. Mr. Hopkin, speaking of education and of the proposed arrangements of the Council, reminded me that it is not yet time to put our matriculation scheme on the level of that of the medical man. We have done so, but remember it is a minimum. The very lowest pass which will be accepted by the doctors will enable our men to get in. They do not

go for the lowest. There are hundreds of their men who hold a University degree, and there are thousands who hold not a bottom certificate on the list, but a good fair average. We accept any they like to give us, the bottom one if you like. I hope that will be raised some day. It is said that the medical profession accept the lowest, and so they do. There must be a line drawn somewhere. As a matter of fact, it is as common as can be to see in reading medical literature "M.A." after the name of almost every man who writes an article in the *Lancet* or in the *British Medical Journal*. It was pointed out by Mr. Simcocks that energy, and tact, and honesty, and things of that kinds are really, after all, the bottom of your success. That is quite right; but I am not arguing for your success altogether. Success does not mean the success of the best man. Darwin never talked of the survival of the best, but of the survival of the fittest. We want to get a little beyond that. The survival of the fittest is all right in the case of dogs and tigers. It ought to be the survival of the best amongst men, and if we can possibly alter it by teaching, by examinations, or any other way, we will try to alter it. Natural and artificial selection are powerful items in effecting the result of any evolution. The empiric, the man who disguises his ignorance instead of showing his skill, obtains as good a practice as other men, and if we can put a stop to that sort of thing so much the better.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

An ordinary general meeting of the Central Veterinary Medical Society was held at the Holborn Restaurant on November 4th.

The President (Mr. W. Roots) was in the chair.

The following Fellows were present:—Vet.-Captains Butler, Raymond and Smith; Vet.-Colonel Duck, Dr. Fleming, C.B., Vet.-Major Kettle; Messrs. W. F. Barrett, A. L. Butters, S. E. Holmans, J. S. Hurndall, G. Lansley, W. J. Mulvey, Prudames, J. Rowe, Rogers, W. Roots, Samson, S. Slocock, M. Tailby, J. Woodger, F. Wragg, F. W. Willett; Profs. Macqueen, Pritchard, Penberthy and Shave.

Amongst the visitors were Dr. Goffin, Messrs. A. Hill, J. Woodroff-Hill, G. E. King, Maidment, G. Thatcher, Williams, and Wingham.

A letter was read from Sir Joseph Lister, Chairman of the Council of the British Institute of Preventive Medicine, setting forth the aims of this body, and inviting subscriptions from the Society. It was determined to bring the matter forward at a future meeting.

The following gentlemen were balloted for and elected Fellows of the Society:—Mr. F. Hobday, Mr. J. Farmer, and Mr. W. J. Arkcoll.

The following address was delivered by the President;—

Gentlemen,—There have been instituted during the past year some very great alterations in our surroundings, and I think that I cannot do better this evening than make a few remarks about some of these reforms.

The Charter.

After several years of agitation and excitement, a new Charter has been granted to us, which, I trust, will, amongst other benefits, bring the Fellows and Members of our profession more into harmony, and eliminate those rancorous feelings which, until lately, have existed in the breasts of a few of our brethren.

Educational Reforms.

There is no doubt that if the higher general educational standard is carried out according to the ideas of the promoters of this reform, it will materially assist our successors in attaining that social position which is desired by all

who have the welfare of our profession at heart; for how can it be possible for a mind to grasp and assimilate the large amount of scientific knowledge which is now demanded of our graduates, and which will in the future be greater in quantity and quality, unless the general education is, at least, up to the standard now demanded by the Royal College of Veterinary Surgeons. One of the best results which I hope will be the outcome of this higher education of our future members will be, that we shall behave more fairly to each other, and that we shall do as we wish to be done by; other means of obtaining the same objects are by the reasonable curtailment of the supply of new members, which will in a measure result from the newly-instituted four years course of study, by trusting each other, by persuading our neighbours to join our societies, thus becoming more intimately acquainted, and by other methods which, for the moment, do not occur to me, but which each can work out in his own time and manner, and so become one of the workers for our general advancement.

The J. H. Steel Memorial.

I am sure you will be glad to hear that the Council of the Royal College of Veterinary Surgeons has been pleased to accept the management of this fund, to which the society gave a donation of 20 guineas, which was collected to perpetuate the memory of the late Professor Steel, through the untiring energy of our friend, Capt. Raymond. No doubt one of the causes of this fund reaching the very respectable sum of over £300 was the brotherly feeling which, I believe, is becoming more apparent in our midst, as well as the desire that the name of one so respected and appreciated by us should not be allowed to sink into oblivion.

The Glanders Order.

A few words upon the issue of the Glanders Order by the Board of Agril culture, which is no doubt largely due to the opinions expressed by London veterinary practitioners, headed by our friend Mr. Hunting.

I hope that the new measures will have the effect of reducing the disease to a minimum, but I cannot see that the new method of procedure is a great improvement on that to which we have been accustomed for a long time past. It is certainly more elaborate and expensive, but whether the present system of destroying the carcase will have any greater effect on the stamping out of the disease than the old style of utilising the body for animal food is, to my mind, very questionable.

Why the disease cannot ultimately be stamped out I fail to see, considering that for some few years past there has not been a case among the horses in the British Army, which demands a word of praise to the officers of the Army Veterinary Department, when we consider the large number of animals which are annually purchased, and the fact of their moving about from place to place, even in the hot-bed of the disease. One would not be very much surprised if there were occasional ontbreaks.

The subject of vivisection created a very heated discussion at the late Church Congress, but I am very doubtful if a Church Congress is the best body to judge such matters. Whilst strongly in favour of legislative restriction upon experiments on living animals, I consider that the present law is sufficient to restrain anything in the shape of cruelty. So far as our profession is concerned, so-called vivisection is almost entirely confined to inoculations connected with contagious diseases. That these experiments, while inflicting a certain amount of suffering upon a few animals, have saved the lives, or otherwise benefited thousands of others, is not open to discussion.

Last session we had the misfortune to lose the services of Mr. Woodger as ur honorary treasurer, a post long and efficiently held by that gentleman;

but in Mr. Rowe we have found a successor who has always had the welfare of this society at heart, who now is in the proud position of having occupied every office in the society, and I feel perfectly satisfied that he will do his best to keep our funds in a flourishing condition.

In my address, last year, I alluded to the fact that this society had then attained its majority, and I hoped that its future would be even more successful than its past. This wish has been amply fulfilled by the good work accomplished and the numerous attendance of the Fellows and their friends at our general meetings, the average number amounting to 25, which is a good augury for the welfare of this society, and I trust that it will continue to maintain its foremost position in the ranks of the veterinary medical societies of this country.

In conclusion, gentlemen, permit me to thank you for the very great honour you have conferred upon me by re-electing me your president, a position which I shall endeavour to occupy to the best of my ability, and whose responsibility is so very materially lightened by your hearty co-operation in the reading, discussing, and defending of essays, &c., by your excellent attendance already alluded to, and by the very great assistance rendered by our esteemed friend and honorary secretary, Mr. Rogers, whom I sincerely thank for his help in the past, and look with confidence for a continuance of the same during the present session.

Nomination.

Vet.-Capt. Longhurst, A.V.D., Aldershot, was nominated for the Fellowship of the Society.

Presentation to the Late Hon. Treasurer.

The President, on behalf of the society, made a presentation to Mr. Joseph Woodger (late hon. treasurer) of an exceedingly handsome liqueur cabinet, bearing the following inscription: "Presented to Joseph Woodger, Esq., M.R.C.V.S., by the Fellows of the Central Veterinary Medical Society, in appreciative recognition of many years service as treasurer, 4th November, 1892." The President in his speech expressed the gratitude of the society for the way in which Mr. Woodger had carried out the duties of the hon. treasurer. He referred to the fact that Mr. Woodger's term of office covered nearly the whole of the time this society had existed.

Mr. WOODGER very gratefully acknowledged the gift, and the business of the meeting terminated.

The Fellows adjourned to the Princes Salon, where the twenty-third annual dinner took place. The dinner was well attended, and an enjoyable evening spent.

H. G. ROGERS, *Hon. Sec.*

SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of this Association was held at the Royal College of Veterinary Surgeons, September 29th, 1892, Mr. James F. Simpson (President) in the chair.

Messrs. Maynard, Junr., of Romsey, and Mr. E. W. Langford, of Shaftesbury, were elected members of the association.

The PRESIDENT said he had issued a large number of invitations to metropolitan practitioners, and had hoped that more would have been present, but considering that only as recently as last month they had had the opportunity of discussing the subject of glanders and the amendment of the law relating to it, one could hardly be surprised that the attendance was not very large. He had hoped that many metropolitan members of Parliament would have been present, so that when the subject came before them in their capacity as

members of Parliament, they would be in a better position to know into which lobby to go upon a division. He was happy, however, to say that one gentleman had honoured them with his presence, Mr. C. F. Frye, of Bourne End, member for North Kensington, whom he had the pleasure in introducing to the meeting. He had received many letters from members of the profession regretting their inability to attend, but he had no doubt that during the course of the afternoon many others would drop in and be in time to take part in the discussion which would follow the reading of Prof. Axe's paper.

(The paper on "Glanders, its Spread and Suppression," delivered by Prof. Axe, appeared in the November issue of the JOURNAL.

Discussion.

Mr. HUNTING, in opening the discussion, said that he agreed as a whole with the address just delivered by Prof. Axe. As a paper on the sanitary aspect of glanders, it was certainly by far the best he had ever heard or read. He agreed with the author that the so-called recent increase of glanders was better described as a recent scare, and that the actual number of reported cases had only shown an increase because every man who had put aside in a dark loose box a few cases he was patching up for his neighbour, got in a funk at possibility of prosecution, and produced them to the inspector. Professor Axe had been careful to qualify his remarks with regard to the statistics taken from the Government return, by saying that he did not think they altogether represented the truth. The word "outbreak" had been frequently used, and he thought they might get seriously wrong if they drew conclusions about the increased number of outbreaks. There were probably in London about a hundred large stables which now had glanders, and always had in the memory of man. If, however, they managed to go free for a month and glanders appeared again, the inspectors return it as a fresh outbreak. In that way, in the course of twelve months they might get in one stable which had been an infected den for twenty years, eleven separate outbreaks on the Government returns. Professor Axe had illustrated the chief cause of the spread of the disease by relating one or two cases he had seen in the country, in which a diseased horse from London carried it into the country. That, he thought, was, in nearly every case, the cause of the outbreak in London as it was in the country. In his own experience he had only failed to trace about five per cent. of the new outbreaks directly to that cause. There were only three causes for the sale of cab horses as far as he knew in London, namely, when the bill-of-sale man sold them, when the owner died, or when he was sick of having glanders in his stables. Professor Axe had descanted for a long time upon article 22, which provided that if a man did not kill his horse after notice he might have 21 days' delay before the law could compel him to. He characterised the argument which had been adduced, as an argument derived from the study of the Act in a book, for the simple reason that nobody had ever been able to bring before him a case where the Act had caused the delay of the slaughter of a horse, and because after 15 years' experience of the Act he had never come across a case in which it was necessary to use it. It was all very well to say that the penalties and coercions of the Act were not the right thing; but they were effective for all that. The same argument would apply to every crime. It was only the fear of God or the broom-stick which made people keep the law, so that that Act was no worse than any other. If, however, they had another Act, he thought some more summary measures might be adopted. He agreed with the author that glanders and farcy were one and the same disease, so far as origin and cause. Prof. Axe had complained that he (Mr. Hunting) had stated that glanders was incurable, and that farcy was curable. He ought to have stated that there were cases of farcy, and even of glanders, which occasionally recovered, but only very

occasionally. In those cases perhaps two or three calcareous nodules were found in the lungs. Those were the *raræ aves* that appeared once in ten thousand times. A precise analogy was to be found in the human subject in the incurable disease of tuberculosis, where every now and then a *post-mortem* showed the strange feature of a spontaneously cured case. The author had stated that a common method of infection was probably direct inoculation. That was one of the points upon which he most distinctly differed from the Professor, and for this reason, that they knew that when a horse was wilfully inoculated it nearly always died within eight days, but that when a horse was infected by the ingestion of food it seldom showed any symptoms of the disease for a month or two. Therefore it was more probable that horses obtained the disease through ingestion than through direct inoculation. There was no method of infection so easy as ingestion. Scores of cases could be traced to the manger, but he had never yet seen a case of accidental direct inoculation. Among the suggestions offered by Prof. Axe was the limit of sale, that horses should not be allowed to be sold out of an infected stud for some little time except by the license of the inspector. He agreed with that; but he would go farther. It was a pity that that point could not be insisted upon to a larger extent, because if he was right in thinking that the disease was spread more by the moving of a diseased horse from an infected stable to a healthy stable than by any other means, the limit of sale would put a stop to fresh outbreaks more than any other regulation that could be enforced. Some time ago Mr. Dollar had suggested branding on the feet. He (Mr. Hunting) thought that might be a useful adjunct to other regulations. The author had stated that £95,000 would be the maximum cost; but even then it would pay to stamp out the disease. He had nothing to say with regard to mallein except that, if it turned out to be the success it was supposed to be, it would be an invaluable aid to the diagnosis of glanders and farcy. Prof. Axe had stated that the Board of Agriculture ought to be the acting body to carry out a thorough law for the suppression of glanders, and not the local authorities. He quite agreed with that. A new Order has just been issued giving pretty full powers to the local authorities, and he believed the County Council of London would take the order up and see it carried out. He hoped that would be the case, because London was the head-centre of the disease, and it seemed somewhat illogical to adopt a method of stamping out glanders which perhaps might be applied in one or two counties only when there were 30 infected. Unless they had means of making the other 28 or 20 counties do their duty success would be delayed.

Dr. Fleming said he thought they must all agree with Professor Axe that the urgency for sanitary measures for the suppression of glanders was very great. There was no doubt that glanders was extending in the provinces, where the malady had not before existed. There could be no question that the malady had always prevailed in the three kingdoms from time immemorial, and therefore it could not be said to be a new disease. That it had become much more prevalent than formerly, as far as the owners of private stables were concerned, there could be scarcely any doubt. In view of the great loss which the malady occasioned, the great embarrassment caused to horse-owners, and the great danger to public health, he thought measures should be adopted of a general and uniform character. Perhaps the loss of human life was not to be so much considered. In sanitary measures public health was not weighed, and human life was not so much valued as the life of animals when it came to a matter of pounds, shillings, and pence. He maintained that when human life was endangered by animal disease, it was doubly urgent upon the Government to undertake measures to protect the public health. Public wealth was very important, but public health was still more so. With regard to the malady being suppressed, there could be no doubt that if proper measures were

wisely framed, rigidly carried out, and universally applied to the three kingdoms, it could be suppressed. There was one point the author had not noticed in the paper, namely, the danger, when the malady had been suppressed in this country, of its being introduced from abroad. The disease prevailed in nearly every part of the civilised world. The only parts which had remained free were Australia, New Zealand, and Van Diemen's Land, and that was because of the extraordinary precautions taken against its introduction. But in other countries the malady prevailed, especially in those which largely exported horses into this country. It was very little use attempting to stamp out the malady in our native horses when they were always liable to its re-importation. In addition to the measures so wisely proposed by Prof. Axe, he should certainly suggest that an inspection of imported horses should be made. Great difficulty, however, would attend the success of that inspection, for the simple reason that infected horses showing no signs of the disease might be landed in this country, and after their arrival infect other horses. In dealing with glanders, they were not dealing with a disease at all allied in its sanitary aspects to contagious pleuro-pneumonia, or foot-and-mouth disease. Unless the importation of horses from abroad was entirely prohibited, he thought there was great difficulty in keeping the malady out of the country. With regard to the danger of army horses being infected in case of war, that was a danger which would always exist so long as the countries from which the supply of horses was drawn were infected. The horse supply was limited, and in the case of an extensive European war they would have to rely upon supplies from those countries in which the disease prevailed; therefore, unless those counties stamped out the disease, they would always be liable to have the infection introduced among army horses. He could testify to the great damage done to the Army by horses suffering from glanders. During the Crimea, he had had the painful experience of sending off a score or more of horses and mules per day for destruction, on account of glanders and farcy. Mules, especially, suffered from the complaint, and the loss of animals in 1856, when there was no war, was immense. In the field, horses appeared to be much more susceptible to the malady, and it ran a much more rapid course than in stables; so that as far as the army was concerned, the malady was a constant and very grave danger. In Egypt, too, the disease had caused a vast amount of inconvenience. With regard to the central authority bringing out its measures and leaving the enforcement of them to the local authorities, that was a shirking of duty. For years they had had experience with regard to local authorities managing those maladies. It was like a piece of disjointed machinery; one portion would work well and energetically, but another portion would not work at all. It was a matter for the central authority to undertake, and he protested against it avoiding its duty by delegating it to the local authorities. He thought the terms "glanders" and "farcy" were most unfortunate. He hoped veterinary-surgeons would drop the word "farcy" altogether, as it was gravely misleading. The two diseases were the same, the one form being quite as infectious as the other. Some people thought farcy to be a mild disease, and that it could be cured, but in his experience farcy and glanders could never be cured. With regard to branding, when glanders appeared in an establishment of horses, every horse should be branded, as they were not, in his opinion, safe. He would not advocate branding on the hoof, because it would wear out or could be rasped out; but in a conspicuous part of the body—on the neck or quarter, where the mark could be readily seen—so that those who bought those horses afterwards might know the danger they incurred. It might be a serious thing to brand people's horses, nevertheless, it was a most important point. He considered a horse out of an infected stable a most dangerous animal to be allowed to enter a healthy stable. With regard to mallein, he expressed a hope that it would be found, from further

experience, to be all that it already proved to be. Every authority on the Continent who had written to him on the subject had pronounced it a success, and declared it to be an invaluable diagnostic aid in glanders. He had received a letter from Mr. Woods, of Wigan, informing him that he had applied some mallein, which he (Dr. Fleming) had obtained for him from Paris, to some animals having glanders, and the effects had been most remarkable. He thought, therefore, that if the agent proved to be so valuable, its use in the detection of glanders would be most important, and would largely diminish the difficulty which veterinary-surgeons hitherto had experienced in diagnosing the malady. He had known cases of glanders in which nobody could detect the malady except by uncertain symptoms, namely, auscultation might show the lungs were not healthy, and the animal was not in very good condition; but there was nothing else upon which they could rely to diagnose the disease. If mallein were found to be of value in the diagnosis of such cases, it would, indeed, be a great boon to veterinary surgeons. Mallein was a preparation of glanders virus and glycerine. A certain portion was injected under the skin, and in the course of six or eight hours, if the animal was glandered, the temperature rose considerably, and the animal became very ill. The same amount of mallein, however, introduced beneath the skin of a healthy horse would scarcely raise the temperature at all, and the animal was not infected. Those who had glandered cases in hand and wished to try the effects of mallein, had only to write to Dr. Roux, at the Pasteur Institute, and he would gladly send them some. The temperature of a glandered animal rose, after the introduction of mallein, to 104, 105, or 106, and even as high as 108: the rise was very rapid after a certain number of hours. He thought the meeting should not disperse without expressing a strong opinion as to the urgent necessity for the central authority taking the control of the suppression of the malady. If it were left to the local authorities we would be no better off fifty years hence than we were now. The local authorities have been already tested with three diseases, and had absolutely failed. It was necessary that Parliament should take the subject in hand, that a new or improved Act should be obtained, and that the central authority should be the body to carry it into operation. It was a standing disgrace that a malady which could be so easily suppressed should be allowed to prevail to the extent it now did. He also thought that while suppressing the disease in this country, steps should be taken to prevent its re-introduction from abroad.

Prof. SHAVE said he entirely endorsed the ideas promulgated by the gentlemen who had spoken as to the necessity of action being taken by the central authority. He was glad that they appeared to be pretty well unanimous that glanders and farcy were one disease, and caused by one organism. He saw the justice of Dr. Fleming's remark with regard to imported horses, and that if they stamped out the disease in this country and did not stop the importation of horses from European countries which were known to be affected with glanders, very little good would be done. It was absolutely necessary that horses should be branded which were known to have been in contact with glandered animals. He agreed with Dr. Fleming that it should not be done on the hoof, but somewhere where it would be noticeable by anybody. As far as the cruelty was concerned, he thought very little would be heard about it, and that it would die a natural death. As to compensation, if a man was compensated at all for having his horses killed, he should receive the full value of the animal, and not two-thirds or three-fourths of the value. He was glad to hear mallein so highly spoken of; he had had no experience of it, but he would take an early opportunity of trying it.

Vet.-Capt. RAYMOND said the objection to branding animals was that the Society for the Prevention of Cruelty to Animals would take the matter up, and even if they injected the mallein they would have the anti-vivisectionists

after them. The idea had occurred to him, why should not all horses in a glandered stable be destroyed? In cases of pleuro-pneumonia, all the animals were destroyed; and glanders was a much worse disease than pleuro-pneumonia.

Sir HENRY SIMPSON said that as mallein was used to diagnose glanders, it would be very desirable that the proper authorities should take up the matter and institute a series of experiments with a view of demonstrating to the Government and the community at large, that veterinary surgeons were able to do something else than talk. He suggested that the Royal College of Veterinary Surgeons was the proper authority, and trusted that at its next meeting some gentleman interested in the subject would take upon himself to propose a resolution to that effect. They were honoured with the presence of a member of Parliament, and it was desirable that they should not frighten him from a financial point of view. Any recommendations they desired to submit should be of a thoroughly practical nature. It was true that the slaughter of a herd of cattle suffering from pleuro-pneumonia was insisted upon. In that case, of course, there was a great deal of makeweight and a great deal of salvage. In pleuro-pneumonia the disease was so highly infectious that it was absolutely neeessary that the animals should be destroyed. If they suggested that the whole stud in a stable should be slaughtered, he thought they might be considered to be going a great deal too far. He thought infected horses should be slaughtered and compensation given, and that the other horses in the stable should be marked in some way. They could give them hog-manes or cut off their forelocks. He considered the Society for the Prevention of Cruelty to Animals would be exceeding its function if it interfered with a moderate branding. By interfering, it would do more to disgust the public than anything else. With regard to compensation, Prof. Axe very properly had gone into the figures. One thing which was outside the discussion, however, was well worth the consideration of those who had to legislate and find the money. A certain grant was made for the slaughter of animals suffering from pleuro-pneumonia. That grant was not being expended, and the Government perhaps, might augment it and make it a grant for pleuro-pneumonia and glanders. The disease was confined to a limited area which he would define as the East End of London, because the counties adjacent to the East End of London were those which were affected. At the other end of the metropolitan districts, in Berks and Bucks, there was very little disease indeed. The horses in the East End were almost stationary, but he thought it would be found that more horses were removed from the West End than from the East End. They went all over the Kingdom, and yet, singular to say, there were very few outbreaks which could be said to be due to disease sent from the West End. As to the importation of horses they could not afford to say that they should stop it. If a man wanted to go to Paris or Vienna to buy some high-stepping horses he thought there was very little to be apprehended from them. Those horses would come from highly connected stables, and would hardly be likely to be infected with glanders. A system of registration might be adopted whereby every imported horse could be registered. As practical men they must endeavour not to suggest anything like stopping a particular branch of trade. If it were thought absolutely necessary, of course they could do so, but they must be most careful not to overstep the limits either in slaughtering or in importation.

Mr. SHEATHER said that perhaps he might be able to throw a light upon Sir Henry Simpson's remarks, when he said that he thought the Essex side of London suffered more than the surrounding counties fyom glanders and farcy, and that in all probability the East End was the centre from which it spread. For many years he had been connected with large studs, and it had been the custom among some West End owners of that particular class of horses in

which glanders and farcy were usually prevalent to send off drafts to the salt marshes in Essex, where no doubt they met with a great number of other horses. In all probability that was a clue to the greater prevalence of the malady in that district. There was a notion existing that the salt marshes were beneficial to animals which had shown symptoms of farcy, or which were known to have been in contact with horses which had been slaughtered for glanders. Only the previous day he had had an animal submitted to him—which he could obtain if anyone wished to make any experiments upon it—which he was morally sure was glandered, although there was no enlargement of the gland or discharge from the nose. He had not given orders for its destruction, although he had advised it. There were old cicatrices down the thigh, and he came across a man who remembered the animal having a cord and three buds on that particular thigh three years ago. The animal was sent down to the marshes and recovered from those buds, and it was only the previous day that the animal was submitted to him to say what was the matter with it. When one got a case like that, it set one thinking as to what could be done by legislation. Supposing a law had come into force that suspicious cases, as well as glandered cases, should be slaughtered, a feeling of security would be developed in the country that glanders had been exterminated, and people would think that glanders was not wholly due to infection, and they would revert to their ideas concerning contagious diseases of twenty-five years ago. In proportion as they diminished glanders, so there was a risk of new outbreaks occurring. The disease could be rapidly destroyed in great centres, and there would be a feeling of security abroad that glanders was blotted out, and as time went on there would be inexperience amongst those best fitted to diagnose glanders and understand it in all its forms. He knew that there were some veterinary surgeons who had never seen a case of glanders. He had no doubt that glanders would be eliminated, but it would be one continuous hard task, and would take at least ten or twelve years. With regard to Dr. Fleming's remarks, he believed that the authorities had registered certain studs in London as aids to the Army if required, the owners of those horses receiving a capitation grant of 10s. a year. He knew for a fact that some studs thus registered were affected with glanders. Under those circumstances what was the use of Imperial funds in order to keep the Army free from glanders? The whole system that had been required to keep it free from glanders might be destroyed. On a sudden emergency horses might be drawn from stables apparently free from glanders, but the horses might be associated together on shipboard, and they would be found to be glandered right and left, leaving the Army decimated as it had been before. Whatever steps were taken they must be far more thorough than any gentleman had suggested. He thought the order which was already in existence would be found to be totally inadequate to deal with the matter, as it limited itself to England and Wales. He had known cases of horses being sent to Ireland and then being returned. A man might buy a number of horses, and stipulate that five or six of them should be returned if they did not want them. In all probability those horses might have been with others suffering from glanders, and in that way they would be sent from this country back to Ireland. So long as traffic of that kind was carried on he did not see how an effective legislation was possible. He could point out instances of the uselessness of limiting sale. As to branding, he did not think that any good could be gained by it. With regard to the nature of the disease, he was sure that it had undergone a change. It was now most rare to see a violent case of glanders—inflammatory lung, high temperature, and rapid ulceration of the nostrils. He did not see such a case once a year. The slow form, however, was more prevalent; and being so insidious it was more difficult and dangerous to deal with. The subject was also important from a clinical point of view. He had

seen cases of farcy existing in a limb, a wound had occurred upon another part of the animal, and had gone through all the stages of healing, and had become properly healed with a healthy scar. They were in the habit of assuming that an animal infected with farcy was infected all over the body, but he had seen many clinical cases which to his mind pointed to local infection. He might go further, and say that it was possible for a horse to have three or four farcy buds on his body with a cord connecting them, and that he should be sound in his lungs. The bacillus might remain in the neighbourhood of the lymphatics, and in the neighbourhood of the scars, but as age went on, softening might take place and glanders result. They could not determine what caused glanders in one case and farcy in another. No doubt the bacillus was the active microbe of each, but he had seen sore shoulders heal perfectly and rapidly while a limb had been infected with farcy. There were animals which gave indications of having received the poison, but never showed another symptom during their lifetime. It had been his custom in suspicious cases of glanders to carefully take the temperatures night and morning. It would be found that the temperatures rose to 101° almost without variation, and might go to 102°. The horses might go on with their work and show no other symptom of disorder, and their temperatures might fall again to the normal in four or five days. Some time afterwards there would be a little enlargement in the axillary glands which would remain for the rest of the horse's lifetime. He was certain that there were numbers of horses which resisted the disease and imprisoned it in their glands, and in all probability destroyed it. If glanders were so fearfully contagious, as was sometimes represented, he did not see how any horse in London could be other than glandered, considering the way the disease was spread about. Glanders could be eliminated from a single stud without much difficulty, but it requires close personal attention. Suspicious cases should be isolated, and the horses destroyed if one's suspicions were confirmed. Horses, however, that were sold might spread the disease elsewhere. There were cases that would in all probability escape then, be they as keen as they might be in the matter.

Veterinary-Colonel DUCK asked Professor Axe at what stage he thought glanders became actively contagious or infectious, and at what stage farcy became contagious or infectious; or assuming it to be the same disease, whether farcy was less infectious than glanders. One could imagine glanders spreading in a London stable where the sanitary conditions were bad, but glanders might spread just as rapidly in horses in the open under quite different conditions. He should like to know whether the outbreak which had recently occurred was really a scare. Mr. Hunting seemed to think that it was, and he supposed Mr. Hunting, of all men in London, was best able to give an opinion. He had heard from the northern counties, where glanders had been almost forgotten, that they had recently had cases of it. With regard to mallein, it had been cracked up very much lately and had come in the nick of time. The test seemed wonderfully easy, but with the insular prejudice of an Englishman he was inclined to accept such things with a little hesitation. They had had many experiences of scientists, but he was sorry to say that scientists sometimes made mistakes as well as other people. Before accepting mallein in England as a sure, safe, and easy diagnostic, he thought they ought to have some practical demonstrations of it.

Mr. SINGLETON said that there were two points insisted upon in Prof. Axe's paper which had greatly struck him: one was legislation, and the other extermination. It appeared that they all unanimously agreed that legislation was absolutely necessary. Glanders was admitted to be a disease not amenable to treatment, a disease in which the man of science had to stand aside and give way to the poll-axe. Capt. Raymond had warned them against having recourse to the use of mallein, as they might incur a liability of being

prosecuted. He thought legislation in that direction was needed also. Bacteriology had already done a great deal in that disease as well as in others. It had demonstrated that the bacillus was the actual cause of glanders, and they had recently heard of mallein being effectually used in diagnosing the disease. Dr. Fleming had told them that they could be provided with the substance: but they had also been told that they would not be allowed to use it. He certainly thought that such a state of things should not exist. They were fortunate in being honoured by the presence of a member of Parliament.

The PRESIDENT said he had asked Dr. Fleming to draft his proposition in the form of a resolution, which he had done. The motion was as follows:—"Inasmuch as glanders is a purely contagious and incurable disease, destructive to horses and dangerous to human beings, and as it can be and should be suppressed, it is most desirable that Government introduce adequate measures for its suppression, and that these measures be applied to the United Kingdom." It should be remembered that the use of mallein was not a cruel experiment, but merely a test. Branding animals was perfectly legal. There was no cruelty, for the pain was merely trifling. Sheeps' ears were marked and horses' tails were docked. Branding horses was not a cruel act, and it was most important for the public safety.

Mr. PRICE was of opinion it was rather unfortunate that Dr. Fleming should bring forward his resolution at the wind-up of the meeting. He thought that the members of the profession ought to have had notice of it, and that Dr. Fleming was not justified in saying what he had as to the Board of Agriculture and the London County Council not doing their duty. The County Council was an active and persevering body, and if they were entrusted with an order they would faithfully do their duty and carry it out in the best possible manner. He had, however, no doubt that legislation on the subject was necessary, and that the law as it stood at the present time with reference to the suppression of glanders and farcy was very defective. With regard to the branding of horses he thought that if the members of the profession wished to recommend anything it should be practical. In his opinion, the branding of horses because they had been in a stable with glandered horses was a very impracticable thing; in fact, it would be one of the greatest stumbling blocks to the stamping out of the disease imaginable. In the case of a cab proprietor who gets his living by plying for hire in the streets having one or two horses glandered, if all his horses were in consequence ordered to be branded it would mean ruin, unless the Government came forward and were prepared to compensate him for his loss. Nearly all the horses in the streets of London would be branded. There would be a bigger scare than they had at the present time and he hoped that the meeting would turn their faces against it. Professor Axe and Dr. Fleming had said that farcy and glanders were one and the same disease. He quite concurred with them in that. But they had gone further, and said that farcy was incurable; but he was quite positive that he had seen cases of farcy perfectly cured. He could show them horses that had had farcy seven or eight years ago which he had had under his own observation, and which were perfectly cured. At the same time, from practical experience he thought that the veterinary surgeon who dabbled with cases of farcy did a wrong thing. He was of opinion that farcy was as contagious as glanders, and there was no doubt that if they wanted to stamp it out they ought to compensate the owner. Professor Shave had suggested that full compensation should be given, but he was quite against that, because he believed that it would open the gates to trickery and roguery, and would be the means of increasing the disease rather than decreasing it. There were many horse proprietors who would perhaps do mean and contemptible actions, and if full compensation were given them they would put horses, old horses that they wanted to get rid of, with glandered horses. To pay full compensation would be to increase

rather than to diminish the disease. He had no doubt the disease could be stamped out, but he hoped and trusted the members present would not advocate branding every horse.

Mr. HUNTING said it could not be denied that about 90 per cent. of the cases of glanders and farcy in the kingdom occurred in London, that was to say, within the jurisdiction of the London County Council. In comparing permissive measures for glanders with pleuro-pneumonia and other diseases, they went very far wrong. If a disease prevailed where authority covered nine-tenths of it, there was not the same objection to permissive measures as there would be if the disease were equally distributed over thirty counties. He would propose as an amendment that the resolution read as follows:—"That this meeting, whilst hoping the Local Authorities generally will carry out the new Glanders Order, believes that compulsory and general law directed by the Central Authority would be more effective."

Mr. STANTON said he agreed with the speaker who thought that farcy could be cured when in a superficial form. When it got to the acute stage it became glanders, and the horse was only fit for the pole-axe. He had known cases where veterinary surgeons had pronounced a horse glandered, but when he had examined it minutely he had found it was not glandered at all, but simply suffering from acute catarrh. There were many cases in which veterinary surgeons, if they were not particular in investigating the force of the symptoms, might get mystified. During the Crimean War he condemned 54 horses in one year. In those days they were not so learned in their profession as they now were, and the horses used to be taken out and killed. In the present day, however, he thought they ought to find out what was really the cause of glanders. Did it arise from bad food, or from the alternating effects of the atmosphere destroying the condition of the food? At any rate, the blood became altered in its condition, and debility ensued. The whole constitution was in a state of inflammation, tuberculosis followed, and it was called glanders; the glands became enlarged and scirrhous. He thought that before a horse supposed to be glandered was condemned, two or three veterinary surgeons should be appointed to inspect the case. He did not think that a horse ought to be slaughtered on the opinion of one man. He quite agreed with Dr. Fleming and Prof. Axe, that there ought to be a sanatorium, or place where it could be positively ascertained whether a horse was glandered before it was condemned.

Mr. WARD said they all knew that local authorities had up to the present time failed to deal satisfactorily with any disease, whether foot-and-mouth disease, swine plague, cattle plague, pleuro-pneumonia, or anything else; and he thought they ought unanimously to adopt Dr. Fleming's motion as the only practical way of getting rid of glanders. In his opinion glanders would be found to be one of the easiest contagious diseases to get rid of. He did not think there was any ground to suppose that there was any volatile infecting principle in glanders. He firmly believed that it was a fixed virus, something of the nature of syphilis or rabies, and must come in contact with an abraded surface of mucous membrane in order to infect an animal. He thought there was no evidence to prove that horses became infected in any other way than by inoculation. With regard to branding, no doubt it would reduce the value of the animal. The best place, in his opinion, to brand a suspected horse was on the top of the hoof, where it would last eight months. He thought there were very few cases of glanders that would break out after that time.

The PRESIDENT said that Mr. Hunting's amendment was before the meeting. The objection to it was that it did not in any way refer to Ireland, where no legislative measures were in force with regard to the disease.

The amendment was then put and negatived, and Dr. Fleming's resolution was carried.

Dr. FLEMING moved, the resolution be forwarded to the Minister of Agriculture.
Sir HENRY SIMPSON seconded the motion, which was agreed to.

Prof. AXE, in reply to the discussion on his paper, said he did not suppose the meeting expected him to enter into any discussion of the clinical and pathological problems which had been introduced. The main object of the paper was to elucidate from the meeting whether it was or was not desirable that any attempt should be made to exterminate glanders, and, next, to indicate the measures which it appeared to him were necessary in order to carry out that object. The remarks which had fallen from Mr. Sheather with regard to branding were such as to give that suggestion a considerable amount of support, inasmuch as that gentleman had pointed out that horses suffering from incipient or obscured glanders were habitually sent from London on to the Essex marshes. If horses proceeding from such studs were branded, farmers would know that that was an indication of suspicion, and would act accordingly. With regard to the place where horses should be branded, he hardly thought there was room for discussion upon a question of that kind, because one did not want to declare to the whole universe that a man had glanders in his stable. He did not think it would be desirable to place the brand in the most conspicuous part of the animal. The object of branding was not to declare to the public that a particular individual's horses were glandered, or that he had recently had it in his stables, but to furnish a clue to the sanitary authority that such horses had been associated with others affected with the disease. It was merely a sanitary measure. They wanted to avoid producing excitement in the public mind, because anything of that kind was more injurious to sanitary measures than anything else. Mr. Duck had asked at what stage glanders became infectious? That was a question he could hardly answer. He should say that glanders was infectious or contagious whenever the conditions for the discharge of the virus existed, and when there was contact. It did not appear to him to be a question of stage, but a question of exposure of virus. A horse might be in a very advanced stage of disease, but it might be centred in the lungs, as was sometimes seen. Such a horse, so long as there were no surface lesions from which virus could be discharged, would be found to be less dangerous than an animal recently infected with farcy and having sores upon the skin. He thought they were all agreed that notification of the existence ot glanders should be given; that the Act should be altered to render it more efficient than it was at present; and that the administration of the Act should be in the hands of the central authority. If they were unanimous upon those cardinal points he thought the object of the meeting would be achieved.

Vety.-Capt. RAYMOND asked whether Professor Axe's objections to the wholesale slaughter of horses in a glandered stable were based upon financial motives or scientific reasons?

Prof. AXE said that the reason why they should not adopt the same radical measures adopted with respect to pleuro-pneumonia, and slaughter the whole stud, as they did a whole herd or flock, had reference perhaps more especially to the cost it would entail. They could not go into a man's stable, aud slaughter fifteen, twenty, or, perhaps, more horses, at a cost of £50, £60, or £70 a head. As had been pointed out by Sir Henry Simpson, there was no salvage in the case of horses, whereas, in the destruction of cattle and sheep, a considerable quantity of the flesh was adaptable to human food. Capt. Raymond had suggested that they would not be permitted to inoculate with mallein for diagnostic purposes; but, as Dr. Fleming had pointed out, he did not think the slightest obstacle would be thrown in the way. The fact of its being inoculation did not prevent any person from employing it, any more than a doctor would be prevented from employing inoculation in the case of the prevention of small-pox. He thought the two cases were nearly parallel.

It was a measure of diagnosis, the object being to prevent any excessive waste of life and money; and he thought it would be in every respect a justifiable operation.

The PRESIDENT, in moving a vote of thanks to Prof. Axe for his address, said he was sure, from the lively discussion to which it had given rise, that it had been highly appreciated by every member of the Association. With reference to the question as to whether the anti-vivisectionists, or the Society for the Prevention of Cruelty to Animals, would step in and find fault with veterinary-surgeons for applying the scientific test of the introduction of mallein into a horse's system, with a view of diagnosing a case of glanders, he unhesitatingly asserted that it would be a cruel thing if a prosecution should arise out of such an investigation. As had been pointed out, many little operations were applied to assist them in the diagnosis of other cases. A doubt sometimes arose in the mind of the veterinary surgeon whether division of the nerve had taken place in the case of navicular disease, in which case it was common to apply the pin test. The pain of a hypodermic needle penetrating the skin was so small, that it might be compared to the pin-pricking of the horse above the coronet. He did not think that sufficient attention has been directed to imported horses. It was of the utmost importance that horses landing at the various ports should not only receive casual notice from the inspectors, but that they should be submitted to a very minute inspection. They all appeared to agree that the central authority should deal with the question. He greatly disapproved of giving local authorities the choice of what they should do in the matter. In the case of the Notification of Diseases Act, the local authorities had power to adopt the Act or reject it altogether; the result was that even in his own town the majority of the powers that be declined altogether to adopt it. There was no doubt that in refusing to adopt the Act people were making a very great mistake, because it led to all sorts of trouble.

Dr. FLEMING, in seconding the vote of thanks, said that Professor Axe had not only given them a large amount of information, but had put the subject of glanders before them in such a way as to enable them to arrive at a sort of conclusion, which, he trusted, would bear fruit. He (Dr. Fleming) had also drafted a resolution with regard to the importation of horses, to this effect, "That while attempting to suppress glanders in this country, measures should be adopted to prevent the introduction of the disease from abroad." That proposition, however, was not of so much importance, as they had arrived at a resolution upon the other point. He thought they owed Professor Axe a debt of gratitude for the trouble he had taken in drawing up his paper, and for the able manner in which he had laid it before them.

The motion was carried unanimously.

On the motion of Vet.-Capt. RAYMOND, a vote of thanks was passed to Mr. J. F. Simpson for presiding.

Army Veterinary Department.

Gazette, November 8.

HERTS YEOMANRY CAVALRY.—William Carns Breedon Revill, gent., to be veterinary-lieutenant.

The designations of the Principal Veterinary Surgeon in India and Inspecting Veterinary Surgeons have been changed to Principal Veterinary Officer and Inspecting Veterinary Officers respectively. Veterinary Major W. Walker has been granted leave from India to England for six months on medical certificate.

Obituary.

The following deaths have been reported:

H. Gelthorpe, M.R.C.V.S., Darlington, who graduated in 1884.
R. Halpin, M.R.C.V.S., Rugeley, a graduate of 1889.

The death is announced of Dr. Villemin, Member of the Paris Academy of Medicine, who was the first to establish the Contagiousness of Tuberculosis experimentally.

M. Bourrel, a distinguished Parisian veterinary surgeon, died recently. He was best known for his works on Rabies, and for having proposed blunting of dog's teeth as a preventive of inoculation in that disease.

Notes and News.

Zoological Society of London.—The President of the Royal College of Veterinary Surgeons and the Principal of the Royal Veterinary College have been elected honorary members of this Society.

Insurance against Tuberculosis.—A cattle insurance company has been formed at Husum, Germany, for the insurance of cattle against tuberculosis. The premium for cows and heifers is four marks, and for oxen and bulls three marks.

The Race-horse Ormonde.—It is reported that Mr. MacDonough, of San Francisco, has purchased Ormonde, the Derby winner of 1886, from Don Juan Bocau, of Buenos Ayres, for one hundred and fifty thousand dollars (£30,000.)

Horses and Mules in Paris.—According to the returns collected by the French War Office, there are in Paris and the suburbs 109,757 horses and mules, the property of 22,363 persons, suitable for military work in the event of war, in addition to 24,229 vehicles, and 23,551 carrier pigeons, of which half have been trained to convey messages.

An Aged Stallion.—A correspondent of an Irish paper states that the thoroughbred stallion Lothario, by King Tom, was foaled in 1859; that there have been several foals dropped in 1892, which are said to have been begotten by him in 1891; and he affirms that at the present minute there are mares which are believed to be in foal to his service in 1892.

Twenty Persons Poisoned by Diseased Meat.—A case of wholesale poisoning through eating diseased meat is reported from a farm near the town of Groitsy, in Poland. Twenty persons who had partaken of the flesh of a cow which had died of Siberian cattle plague (the Yaswa or Anthrax) were shortly afterwards seized with all the symptoms of acute poisoning. Ten of them died the same day and the others were not expected to survive.

Foot-and-Mouth Disease in Scandinavia.—It is reported from Copenhagen that Foot-and-mouth disease has broken out at Ringkjöbing, in the district of Jutland, and also in the Island of Taasing, near Funen. The Minister of the Interior consequently has issued an order prohibiting the export of cattle from those regions, and authorising the veterinary officer to slaughter all infected animals. An extensive outbreak of cattle disease is reported from various districts in Sweden and Jutland, and also on thirteen estates between Wismar and Lübeck. The nature of the disease is not specified.

Foot-and-Mouth Disease in Germany.—According to official reports, Foot-and-mouth disease was on the increase during the month of September, 1892. Schwarzburg-Rudolstadt, and the principality of Lübeck, have become affected. The districts which remained free from the disease were Schwarzburg-Sondershausen Reuss, Schaumburg-Lippe, Stade, Osnabrück, Aurich, and

Upper Alsace. The districts in which the disease was most prevalent were Königsberg, Marienwerder, Potsdam, Frankfort, Stettin, Stralsund, Posen, Bromberg, Breslau, Liegnitz, Upper Bavaria, Swabia, Dresden, and Liegnitz, Hesse, Mecklenburg-Schwerin, and Thuringia.

RINDERPEST.—Telegrams from the southern governments of Russia state that Rinderpest is rapidly increasing in them, and that the cattle markets have been closed. From St. Petersburg it is reported that the Cattle Plague is assuming large proportions in the province of the Don, where it exists in thirty different localities, and in spite of the measures taken to prevent the importation of cattle from this province to neighbouring ones, the plague has made its appearance at several places within the provinces of Saratoff and Astrakhan. With a view to arrest the further spread of the disease, the authorities have organised a quarantine service, and sent a number of veterinary surgeons to the affected districts.

A VETERINARY CERTIFICATE.—In a very amusing and interesting work just published, "The Memories of Dean Hole," the worthy dean gives several sporting anecdotes, and among them he quotes a letter sent by a veterinary surgeon to a young Oxonian, who had commissioned him to look at a horse for sale:—"Sir, I have examined the horse. The interesting family of quadrupeds to which he belongs is liable to a great number of diseases and injuries, hereditary, climatic, accidental, and I have no hesitation in stating that he has got most of them. He would be a very precious acquisition, as an object-lesson, in our veterinary college, but I do not feel justified in commending him to you, with a view to use or recreation."

RABIES IN THE FAR EAST.—We learn that in 1891 there were many cases of hydrophobia at Singapore. All the wandering and ownerless dogs were killed, and only those registered in the municipal list and wearing a muzzle of an approved pattern were allowed to go at large. In a few months Rabies and Hydrophobia had disappeared. In Saigon last year 48 persons were protectively treated for dog bite, and in 16 of the cases the dogs were proved to have been rabid by experimental inoculation. Of these persons only one died. Dr. Calmette, who is chief of the Pasteur Institute at Saigon, gives proofs of the existence of Rabies throughout the Malay peninsula, and insists on the adoption of preventive measures; he also points to the example of Australia where strict quarantine has succeeded in preventing the entrance of the disease.

HORSE ENDURANCE IN QUEENSLAND.—The *Live Stock Journal* quotes as follows from a letter sent from Queensland with regard to the horses of that colony:—"Few of the horses trot: they all go at an easy canter with their heads poked out. A single-reined snaffle is the only bit used. Considering that they are only grass-fed, and do not get too much of that, they do good journeys. Bushmen often claim to have done 100 miles in the day. I myself rode a four-year-old filly 178 miles between Monday and Saturday, on grass feed, doing 89 miles in one day. I led her, carrying my kit, by the side of another, for the first 40 miles, and I rode her for the rest. The general run of horses is small: probably from the hot climate and scanty food. A horse of 15·2 hands is 'a big horse': and the majority only run from 14·2 to 15 hands. They cost from £10 to £30 there: and in England would fetch from £20 to £30. Those that show quality are weedy: and those that have substance are bad stayers and common looking. One seldom gets one that will go up to his bit. None of the horses are shod except in the towns. The bushmen never touch their horse's feet: and as the travel is over dusty loam and sand, with only here and there a rocky surface, the wear and tear is not enough to keep down the horn and the crust gets very long and ragged, and it is apt to cut the opposite fetlock: so it is well to be armed with a drawing-knife and a rasp."

Correspondence.

HORSE-SICKNESS IN SOUTH AFRICA.

SIR,—In Captain Hayes' article on "Horse-sickness" in the September number of the VETERINARY JOURNAL, he refers to the information given by Messrs. Hutcheon, Wiltshire, Vanderplank, and Armstrong, respecting this disease.

Mr. Armstrong is not a qualified veterinary-surgeon, and we take exception to his name being associated with ours in a way that would lead your readers to suppose that he is a M.R.C.V.S.

Pietermaritzburg, Natal,
12*th Oct.*, 1892.

S. WILTSHIRE,
Col.-Vet.-Surgeon.

ILLUMINATING THE HORSE'S MOUTH.

SIR,—I have read with much interest the valuable paper on dentition by Mr. Henry Thompson, of Aspatria, that was presented to the Lancashire Veterinary Association, on May 25th, and published in the August number of the VETERINARY JOURNAL. In the discussion on this paper, Mr. A. Leather stated that he has on several occasions used a small electric lamp for the purpose of examining the molar teeth. In India, where there is generally a bright sunlight, I have for some time past employed a small, round hand-mirror for that purpose, and have found the balling iron quite unnecessary. If the horse is placed with his back to the sunlight, the mouth opened and the tongue drawn on one side, the light can be thrown into the back of the oral cavity, and a perfect view of the upper and lower molars on one side be obtained. On the attendant removing the tongue to the other side of the mouth, the opposite molar can be examined in the same way. Should the animal be frightened by the mirror, blindfolding will render him quiet. This method of examination has been adopted for some time in this College, and it has been found of the greatest service, especially with nervous animals. A small, plain, round mirror, without any handle, about $2\frac{1}{2}$ to 3 inches in diameter, I have found to be the most suitable, and it can also be used in tne examination of the nostrils.

JOSHUA A. NUNN,
Veterinary-Captain, A.V.D.,
October 26th. Principal Lahore Veterinary College.

HORSE-SHOEING IN RUSSIA.

SIR,—My attention has been called to your reviewer's note of the report on Russian horse-shoeing, submitted by me to the War Office last year. As his deductions are erroneous, and only supporting extracts are quoted, permit me to add the succeeding paragraph :—

"The shoeing of the Imperial stud, the Army, and the better class of private horses, is a striking contrast to the primitive workmanship of the poorer and uneducated farriers. The former case shows what can be done by enlightened modern horse-shoeing, as even feet of defective shape are thus enabled to work. The Russians, when trained, are handy to a degree in affording mechanical assistance, or relief from pressure, to injured or diseased feet."

You will gather from this, I think, that the Russians are well abreast of us in all the modern developments of horse-shoeing, and I may add their "Forge of Instruction," in the Cavalry School at St. Petersburg, is an institution we should do well to copy; where, to quote another part of the report, "from 99 to 120 men are trained annually. The whole Army being thus supplied with men instructed in modern theory and practice."

I ask you to insert this letter in justice to our Russian *confrères*, from whom

I experienced such unvarying courtesy, and of whom M. Hellman, whose loss you deplore in your Obituary notice, was a typical representative.

I. MATTHEWS,
Veterinary-Captain,
Royal Horse Guards.

Hyde Park Barracks,
Nov. 12th.

[The Reviewer was only alluding to the fact that in the Russian army the old-fashioned arrangements for shoeing horses on active service are still in vogue, and that in this respect we having nothing to learn from them, neither have the other continental powers.]

NEW SUTURE NEEDLE AND HOLDER COMBINED.

SIR,—We notice a description in your journal of September of a new suture needle and holder combined. No novelty consists in this supposed new invention, the idea having been anticipated many years ago by Dr. Fleming, a drawing of which appears in our catalogue, page 71, fig. 196. This instrument not only possesses all the advantages claimed by Messrs. Walters and Co., but, in addition, the handle is so constructed that when not in use it forms its own receptacle for the needle, and can therefore be carried about with safety. We apologise for trespassing on your valuable space, but in justice to the inventor, Dr. Fleming, we could not allow this erroneous impression to pass without comment.

West Smithfield. ARNOLD AND SONS.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from Veterinary-Major J. C. Berne, Natal; J. W. Barker, Lincoln, Nebraska; Veterinary-Captain D. C. Pallin, Lucknow; Arnold & Sons, London; Veterinary-Major W. S Adams, Hosur, India; H. Gray, London; R. Ward, Baltimore, U.S.A.; J. Dowling Allman, London; C. Teyssandier, Paris; S. Wiltshire, Pietermaritzburg, Natal; M. A. Railliet, Paris; A. W. Hill, London; H. G. Rogers, London; E. Wallis Hoare, Cork; Veterinary-Captain Nunn, Lahore.

BOOKS AND PAMPHLETS: *P. Megnin*, Les Acariens Parasites; *H. S. Salt*, Animals Rights; *L. Pautet*, Précis de l'Inspection des Viandes; *F. Boschetti*, Delle Tifliti ed Appendiciti negli Animali e nelle Uomo; *Ibid*, La Malleina ed il Siero di Sangue Morvoso nella Diagnosi de Moccio; *Fleming and Boschetti*, Trattato di Ostetricia Veterinaria; *R. Boyle*, A Sanitary Crusade through the East and Australia; *T. B. F. Eminson*, Epidemic Pneumonia at Scotter; Bulletin of the Johns Hopkins Hospital; *M. A. Railliet*, Les Parasites Transmissible des Animaux à l'Homme; *F. B. Goodall*, The Nasal Chambers and Facial Sinuses of the Horse; Bulletin et Mémoires de la Soc. Centrale de Méd. Vétérinaire.

JOURNALS, ETC.: *Lancet; Thierarzt; Annales de Méd. Vétérinaire; Repertorium der Tierheilkunde; Journal de Méd. Vétérinaire; British Medical Journal; Live Stock Journal; Mark Lane Express; Echo Vétérinaire; Bacteriological World; Medical Press and Circular; Moderno Zooiatro; Edinburgh Medical Journal; Clinica Veterinaria; Archiv fur Wissenschaftliche und Praktische Thierheilkunde; Recueil de Med. Veterinaire; Deutsche Zeitschrift fur Thiermedicin und Vergleichende Pathologie; Presse Vétérinaire; American Veterinary Review; Revue Véterinaire; Baily's Magazine; Field; Schweizer Archiv für Thierheilkunde; Wochenschrift für Thierheilkunde; Œsterreiche Monatsschrift und Revue für Thierheilkunde; Journal of the Royal Agricultural Society of England; United Service Magazine; Journal of Comparative Medicine and Veterinary Archives.*

NEWSPAPERS: *Natal Mercury; Baltimore Sun; Dundee Advertiser; Reading Mercury; Toronto Daily Mail; Weekly Free Press and Aberdeen Herald; Scotsman; Times of India; Montreal Gazette.*

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